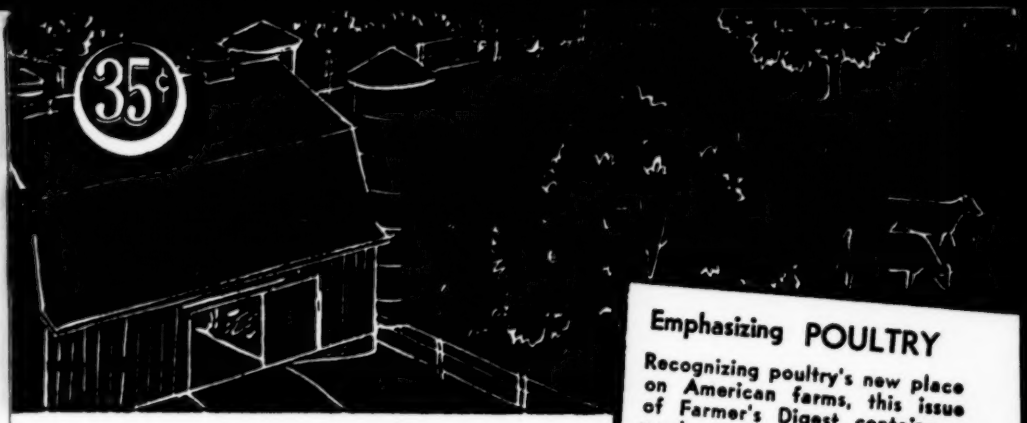

Emphasizing POULTRY

Recognizing poultry's new place on American farms, this issue of Farmer's Digest contains a number of articles on poultry meat and egg production.

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The **Farmer's Digest**

Volume 22 January 1959 Number 7

Started Pullets—Hottest Thing in Poultry

Eggs or pullets — not both. The trend toward raising or buying started pullets is in full swing . .

Condensed from Farm Journal

SOME day you'll produce eggs or pullets—not both.

It now appears that "some day" is almost here. The trend toward raising, or buying, *started pullets* is in full swing.

Not just pullets started by hatcherymen for special customers. That's been going on for years. But a solid nationwide move to *split the egg business into two separate and specialized lines:* one where you do nothing but raise pullets to near laying age; the other where you buy the pullets and spend full time producing eggs.

These are the reasons for the boom:

● Along both coasts, but especially from New Hampshire to Mississippi, the started pullet upsurge is sparked by broiler growers (independent or integrated) looking for a more profitable way to use their equipment.

● In Ohio and Indiana, laying flocks are getting so big that farmers say they can't justify a big stock of brooding equipment that they use only two or three months of the year.

● In the western Corn Belt and Great Plains, farmers in integrated egg plans are pushing feed dealers to keep their houses full of birds that are laying.

● In California, high land prices and zoning laws which limit the number of birds per acre around big cities like Los Angeles are forcing poultrymen

Reprinted by permission from Farm Journal, Philadelphia 5, Pennsylvania

to keep only birds that are laying and paying.

No doubt about it — *started pullets* are the fastest growing trend in the poultry business today.

Hyman Stollman of New London County, Conn. started 5,000 pullets when broilers went sour a few years ago. Last year he moved 500,000!

Georgia broiler growers, many under contract deals, are shifting to pullets. "I expect 500,000 started pullets for Georgia is a conservative estimate," says Roy Durr, Atlanta hatcheryman.

In Ohio, Earl Short of Neuhauser Hatchery says "I had a hard time selling 16,000 started pullets four years ago. This year we expect to sell 400,000!"

If you want to get the correct slant on somebody, observe what he does when he has nothing to do.

Honegger's Hatchery of Forrest, Ill., put out 10,000 pullets last year; already has orders for 50,000 this year.

Who's buying them? Well, for the most part it's experienced poultrymen — guys who have brooded and raised their own replacements for years.

And the reasons they give may make a lot of sense for you. Listen to some and see if you don't agree:

"Our started pullets have averaged close to 90% production since they settled down to lay," says Harry Johnson of Yakima County, Wash. He gathered 377 eggs from one batch of 400 pullets the day we visited him.

"We bought 16-week-old pullets for $1.80 each, and they'd been debeaked, dubbed and vaccinated for Newcastle, bronchitis and fowl pox," says Johnson. "We believe it costs us around $2 to bring a bird into lay, figuring 57c for a day-old chick, 80c for feed, then your lights, litter, building and time. We wouldn't think of going back to brooding!"

"We've culled only 8 out of 560 in the last seven months," says Chris Steffen, Livingston County, Ill., "and they've averaged 83% production."

From Lloyd Frank of New Haven County, Conn.: "You don't have to range birds any more, and it eliminates the big job of crating, and moving several times a year." Frank buys about 20,000 started pullets a year, even though he thinks they cost him more than pullets he raises himself.

Actually, the price of started pullets around the nation is surprisingly uniform. A survey turned up a range of from $1.60 in California to $1.90 in New York for 16-week old birds. Near-

ly all the points checked—including such widely scattered locations, as Ohio, Mississippi and Washington — quoted $1.70 to $1.80.

Some think you can raise 'em yourself cheaper than that. "In tight years, the difference is enough to make farmers go back to raising their own," says Hyman Rashell of Tolland County, Conn. Rashell buys about 8,000 pullets a year "because they give me a steady supply of eggs the year around for my egg route."

"How are you going to pay for pullets when eggs get down to 32c Chicago?" asks Blanton Smith, Nashville, Tenn. hatcheryman. He points out that started pullets are just one more big cash cost that you can't squeeze like you do your own labor income.

But a Cornell University study shows that it may be costing you more than you think to raise your own. Cornell economist C. D. Kearl checked a large number of New York state poultrymen. As a group, they've lost money raising their own pullets, he says. He figures their average costs at $2.02 for a 20-week pullet—5c or 6c more than they could have bought pullets for.

"On the other hand," says Kearl, "farmers with experience and with houses built for the job can make money raising pullets." He cites the records of one Washington County, N. Y. pullet grower whose records for the last six years show an average cost of $1.78 for a 20-week pullet.

Sums up Kearl: "This further step in specialization carries possibilities of lower costs and higher profits for *both pullet raisers and egg producers.*"

Pullets have definitely been more profitable for Hyman Stollman than the broilers were a few years ago when he switched.

"At first, there was no demand at all," he says. "Farmers were dead set against bringing grown stock on their farms." But today he rents eight farms to keep his orders filled!

His advice to people who want to try it: Make sure of your market *before* you start too many; and don't mix birds of different ages on the same farm.

"Life is a grindstone. Whether it grinds a man down or polishes him up depends on the stuff he is made of."

—Josh Billings

Actually, Stollman and a few of his New England neighbors are a rarity in the started pullet business because they operate independently. Most started pullet growers were producing *pullets on contract* for either a hatchery, a feed company or a co-op.

Again the rate of pay was surprisingly uniform across the country: Most contract growers are

getting 1c to 1¼c per bird per week and furnish nothing but buildings, labor and equipment.

"I clear $300 a batch on pullets where I only made $100 on broilers," says Leland Kline of Defiance County, Ohio. "I've kinda started liking chickens again."

He has no risk now—"no worry, no debts, just profit." The hatchery furnishes everything. At first he got 3c a chick a week. But the hatchery thought that was too much, so after some hard bargaining he settled for 1¼c per bird plus 25% of the profit that the hatchery makes after expenses.

"Education makes a people easy to lead, but difficult to drive; easy to govern, but impossible to enslave."

In Sedgwick, Kan., hatcheryman J. O. Coombs and son Eustice grow out pullets on a share-the-profit plan. The grower keeps 75% of the net; 25% goes to the hatchery.

Georgia hatcherymen and feed dealers, as you might expect, are already well along with their own *integrated deal for started pullets.*

Hatcheryman Roy Durr of Fulton County pays contract growers 1c a week per bird for 16 weeks, based on the number of chicks started. Or he'll pay 25c per pullet delivered at 20 weeks. He has a deal with W. F. Cash, Jr. to furnish the feed on credit.

Pullet growers furnish house, equipment, electricity, labor and water. Durr delivers the chicks when the grower wants them, picks up the started pullets and delivers to egg producers who pay $1.80 per bird.

How do you estimate how many you can sell when you're starting them 16 weeks ahead of time?

Monroe Babcock, Ithaca, N. Y. hatcheryman, requires his pullet growers to get a deposit of 30c a bird from the buyer by the date the chicks are hatched. The buyer may forfeit the whole 30c if he cancels.

Any looser arrangement can be troublesome, and this worries Don Turnbull, executive secretary of the American Poultry and Hatchery Federation.

"There are some real headaches where there's no firm agreement," he said. "A case is hanging now where a farmer took delivery without paying. Two weeks later they were hit by disease, so he hasn't paid yet."

"I bought some 13-week-old birds that were supposed to be clean," says one Ohio farmer. "One group developed bowel trouble and coxy. But I had only an oral agreement, so what could I do."

Disease is the big sticker in the started pullet business. That's

what stopped two little booms before—one in the 30's and again in the 40's. Some folks fear it may happen again.

But others point out that we have antibiotics now; we're selling most started pullets now at 16 weeks or older when the birds have developed more natural resistance; and we have good vaccines for the old troublemakers like Newcastle disease, bronchitis and fowl pox.

What's more, most pullet growers follow an "all in—all out" system. They keep pullets of only one age, then move the whole batch out and clean up.

"This started pullet game is the tough end of the hatchery business," admit Robert Atkins and Bruce Campbell, who have been in it for 12 years in Sonoma County, Calif. "The new fellows are going to have to learn a lot of things before they can make it pay."

"It's a hard way to sell baby chicks," sums up A. B. Hall, Jr., hatcheryman of Walliford, Conn. "But started pullets are here to stay."

Best Producing Milk Cows Return Greatest Profits

The highest-producing individuals are usually the most profitable cows in the dairy herd, says E. T. Itschner, Missouri dairy specialist.

D.H.I.A. figures show that as the volume of milk goes up, the return per dollar spent for feed also climbs.

For example, a cow producing from 2500 to 3499 pounds of milk returns a dairyman only $1.85 for every $1 spent for feed.

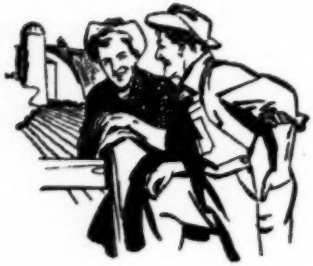
Compare this with the 5500-6499-pound producer that returns $2.20 over feed costs; the 8500-9499-pound producer that returns $2.36; the 10,500-11,499-pound producer that returns $2.49; and on up to the 13,500-14,499-pound producer that returns $2.67 for every dollar spent for feed.

How can dairymen be absolutely sure which of their cows are the high producers?

The only way they can know for sure is by keeping dairy records. They can choose from three record-keeping plans—standard D.H.I.A., Owner-Sampler, and Weigh-A-Day-A-Month. County agricultural agents can describe the advantages of each system.

—University of Missouri

Contract Farming In The Henhouse



There are advantages and disadvantages in producing meat and eggs on a contract . . .

Condensed from
Massey-Ferguson Farm Profit

Ray Reiman

CONTRACT farming in the laying house is here — and has been for several years.

Somewhere around 10% of all eggs now are being produced under various arrangements with feed and egg dealers and other "integraters." That compares with about 90% of the broilers, 10 to 20% of our beef cattle and 10% of the hogs.

Until recently, most of the integration was around the big city markets of the East and West. Now contracts are being signed with family-type farmers through the Midwest and South.

Will "contract farming" take over your henhouse? If you are a good operator, producing the kind of high quality eggs the housewife wants, you have little to fear from the contract operators. If you have a small unprofitable flock or need an additional enterprise to build your volume, take a careful look at some of the new plans.

In contract farming, or "vertical integration" as it is often called, a farmer generally agrees to follow a specific feeding and management program in exchange for a dependable market for his livestock, poultry or eggs. It usually means buying a specified brand of feed and accepting credit and supervision by an outside party.

Typical poultrymen on a package program are Mr. and Mrs. Paul Tuley of near Lawrence, Kan. In cash and credit about 18 months ago, they invested nearly $11,000 in 1680 pullets, 1680 cages, a 30x80-ft. house, egg cooler and other equipment. A large feed manufacturer is behind the Tuleys' plan.

Pullets started laying 4 months after they were housed, and have been holding close to 70%, or 33,000 eggs a month, for the past year. With 37c per dozen

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guaranteed by an egg buyer, the Tuleys had no trouble paying for feed replacements and electricity, while whittling down the original debt at $500 a month.

But late last winter the buyer was forced to go back on his guarantee. Average market prices had fallen too far below 37c and payments to producers were a couple of months behind schedule. Farmers agreed to accept an offer of $600 in the form of a capital debenture bond and the rest of the debt in cash, and live on an egg-price guarantee of 2c over the "mostly" price for Grade A's at Kansas City.

"It's still better than selling eggs on the regular market," says Paul Tuley, and we're producing a lot more quality eggs, cheaper than by any other method. Our feed costs range from only 13c to 19c a dozen. And when we get our house and equipment paid off in about 2 years, we'll have about $350 a month left over after expenses for our 45 hours a week work."

In grandma's day, flowers and herbs grew in the yard and people ate in the house; now, it is the other way around.

At Higginsville, Mo., near Kansas City, feed dealer Ed Yuille has seven cooperators on a program similar to the Kansas plan, without the egg price guarantee. During the first 7 months he bought 141,872 doz. eggs for an average of 3c to 5c above market prices.

Original cost of building and all equipment is about $4 per bird. The cost can be cut if a farmer converts his present buildings to satisfactory cage housing. A down payment of one-third of the original cost is required, with the balance to be paid off in about two years at average egg prices.

Advantages:

1. Usually higher average prices for eggs.
2. Higher proportion of Grade A eggs.
3. Probably higher rate of lay and more eggs per 100 lbs. of feed.
4. More positive culling (with cages).

Disadvantages:

1. Original investment usually costly.
2. Sponsor may run into trouble, leaving farmer "holding the bag."
3. Farmer is deprived of some of his independence; some programs leave him with "hired man" complex.
4. Profit is often less for good poultryman who could finance his own operation and could take his own risks.

Clarence Schowengerdt, one of Yuille's producers, finds it easy and profitable to handle 1248 caged birds.

Schowengerdt's $8000 investment covered cost of a 30x66-ft. laying house, 1248 cages and equipment, 1248 pullets 16 weeks of age, and feed required up until laying time. He's paying off the debt with 510 to 540 dozen eggs a week.

Not all of the contract programs are with caged layers. In Nebraska, where about 55,000 layers are being handled on a large feed company plan, a farmer may use his existing cage or floor facilities if they meet standards.

Adequate egg refrigeration and frequent egg collection must also be practiced. It's the only way that his eggs will be high quality and uniform, and bring above average prices. The farmer must also feed the company's layer feeds and handle a minimum of 500 white-shelled birds.

On another plan, the farmer is paid a flat rate per bird or per dozen eggs produced. Both birds and feed are furnished by the feed dealer; the farmer provides a simple house and equipment and labor.

Under another plan in Mississippi, farmers get $200 per month for each 2000 hens handled. In Indiana, the poultryman is paid a flat rate per dozen for eggs produced, with some getting premiums for egg size, cleanliness and soundness.

Several programs in the Southeast and Southwest work about the same way. Clean eggs bring the farmer six-tenths of a cent per egg. He gets only four-tenths for a dirty egg and only two-tenths for a cracked or leaker egg. His monthly income for providing house, equipment and labor if 2000 layers produce 39,000 eggs (65% rate of lay) would be $234 a month.

"Before a farmer signs a contract, he should be fully aware of what he is expected to do in the way of supplying housing, refrigeration equipment, etc.," warns Joe Sicer, Indiana extension poultryman.

People ordinarily consume 15 calories extra per day for each degree drop in the temperature, that is, when it is available. The calorie intake of people living in arctic regions averages about 5,000 per day.

Producing eggs on a contract basis is not the answer for everyone. A poultryman who knows how to handle layers well, who can finance his own operation and is willing to take his own risk can make more money on his own in an average year.

On the other hand, the farmer lacking credit, experience, or a sound egg market probably would do well to produce eggs under a contract.

What's Ahead For Broilers?

Will the red meat industries give broilers more competition in the years ahead?

Condensed from Broiler Producer

Hermon I. Miller, U.S.D.A.

GROWTH and problems — these two words will describe events in the broiler industry in the years ahead.

These two words also describe very well what's happened over the years which have passed. Few industries, either in agriculture or in other segments of our national economy, have grown as rapidly as has the broiler industry, and few have experienced more problems.

In order to predict the future growth of the broiler industry, it is well to review the past and indicate some of the reasons for the industry's remarkable development. During the 1935-39 pre-war period, broiler production averaged about 70 million head a year; during the immediate post-war years of 1947-49, about 400 million a year; and in 1957, almost 1.5 billion head.

Factors Favorable to Growth

Production this past year has exceeded that of a year earlier by over 10%. Several factors have been favorable to this extraordinary growth, not the least of which has been the aggressiveness of all segments of this vigorous industry. Obviously, one factor to its development has been the very significant increase in our population.

Another factor, and one frequently over-looked, has been the actual decline in the quantity of chicken meat available from farm flocks. In 1947-49, chicken meat from farm production averaged 2,533 million pounds per year. In 1957, it amounted to only 1,329 million pounds, or just about half as large.

We know, too, that generally when consumer incomes go up, the per capita consumption of protein foods, such as meat and poultry, go up. In the 1947-49 period, the per capita consumer disposable income amounted to an annual average of $1,238. In 1957, the figure was $1,740 or 40% higher.

The aggressiveness of the broiler industry can be demonstrated by the great strides it has made

Reprinted by permission form Broiler Producer, 180 N. Wabash Ave., Chicago 1, Illinois

in production and marketing efficiency. More efficient production has resulted from the efforts of the feed manufacturer, the breeder, the equipment manufacturer, and others.

Competitive With Red Meat Prices

Improvements in management and equipment have greatly lowered processing costs. Together, improvements in efficiency of production and marketing have resulted in broiler prices at retail which are increasingly more competitive with red meat prices. This, too, has been a very important factor which has been favorable to the growth of the broiler industry.

Bath—one common noun any schoolboy would be happy to decline.

On occasions, we are, perhaps, inclined to "go overboard" in our evaluation of the future of the broiler industry. It is true that the per capita consumption of broilers has increased from about 1.1 lbs. in the 1935-39 period to about 5.6 lbs. in 1947-49 and to an estimated 19.2 lbs. in 1957.

Total Meat Consumption Per Capita

Taken alone, these figures indicate a level of consumption 10 years hence which is probably rather unrealistic. During much of the time when broiler consumption was increasing so rapidly, the per capita supplies of farm chickens were declining, from an average of 13.1 lbs. in the 1947-49 period, to an estimated 6.4 lbs. in 1957. In fact, about half of the per capita increase in broiler consumption came about by this decline in farm chicken supplies.

Perhaps a more rational way to look at the increase in per capita broiler consumption is to relate per capita broiler consumption to the per capita consumption of all meats, including both red meats and poultry. Total meat consumption per capita has also increased during the past 20 years.

In the 1935-39 period, it averaged 143 lbs. per capita; in 1947-49, it averaged 170 lbs.; and last year, it was 190.5 lbs. Consumption was record large in 1956, when 196.6 lbs. of meat were consumed per capita. During all of this period—and this is important—per capita broiler consumption was becoming an increasing percentage of total meat consumption. A few figures will demonstrate this.

Per Capita Consumption of Broilers

In the 1935-39 period, broilers accounted for less than 1% of all red meat and poultry consumed per capita. In the 1947-49 period, the percentage had increased to 3.3, and in 1957 it was an

estimated 10.1%. During the past 10 years, broilers have gained in importance, in this manner, at the rate of about ⅔ of 1% per year.

This sounds small, but what would it mean to the broiler industry if such a rate of increase were to continue for another 10 years? If we assume this rate of increase for another 10 years, the per capita consumption of broilers in 1968 would represent 17% of the per capita consumption of all poultry and red meats.

If we assume further that the per capita poultry and red meat consumption in 1968 will be equal to the average per capita rate of consumption during the past 5 years, i.e., 188 lbs., then broiler production in 1968—only 10 years away — will be just about twice the size it is now, or in the neighborhood of 3 billion head.

Obviously, it is hazardous to make such visionary predictions of the future size of the broiler industry. The factors which have been so important in the development of the industry up to this point will likely continue to be influential but could change markedly in importance in the period ahead.

In this regard, there is reason to believe that the trend of past years toward increasingly favorable broiler prices in relation to red meat prices may largely disappear. True, broiler production and marketing will continue to become more efficient, but it is my belief that much of the "cream" is so, and improvements will be slower and more difficult to achieve.

Too, there is reason to believe that the red meat industries are on the threshold of new discoveries which will revolutionize their industries just as the broiler industry has been revolutionized in the course of only a few years. What the full effect of these discoveries will be is unpredictable, but to the broiler industry, it surely means greater competition in the years ahead.

New Machine Grades, Cleans Eggs Automatically

Washington Farmer's Cooperative Assn. is operating a revolutionary automatic grading and cleaning machine in its Seattle plant. The machine automatically cleans eggs, sterilizes the shells, removes rejects, weighs, packages and tabulates the grade-out on each member's eggs at the rate of 40 cases per hour — four eggs a second. Not all of the bugs have been eliminated but the machine is working satisfactorily in basic principle and the co-op plans to have more machines built soon. *Poultry Tribune*

How To Protect Stored Corn

Farmers should take immediate steps to safeguard stored corn. Neither insects nor rats help to produce the corn and should not be allowed to share it. Here are suggestions for their control:

1. Place corn only in clean storage. Remove all corn and grain fragments and spray the walls and floors thoroughly. Among the approved materials are methoxychlor, 2½ per cent strength, and pyrethrum-containing sprays. Under no condition should new corn be placed on top of or adjacent to old corn or grain.

2. Guard against spoilage by rats and birds. Buildings should be ratproof. Use warfarin or related compounds such as Fumarin to get rid of rats.

3. Where stored corn is not fumigated, least insect damage will occur if the shucks are not molested, and if the variety grown is well spaced and has light-fitting shucks. Store unshucked corn in something like a slatted crib to provide ventilation and drying. Where unadapted varieties are grown and they are heavily insect infested, feed them first.

4. Corn may be stored with the shucks removed but not shelled. Here again excellent ventilation is needed to dry the corn. Some of the mechanical harvesters shuck or partly shuck the corn. Grain protectants properly applied should be effective on shucked or partially shucked corn.

5. Shelled corn may be stored in tight bins where it can be fumigated to control insects. However, it must be dry before it is placed in the tight bins; otherwise, it will mold and markedly reduce the value. Protectants have value on shelled corn.

6. Some farmers and millers follow the practice of storing corn in the shuck in well-ventilated bins until about Christmas, or whenever the moisture content drops to about 12 per cent. Then they shell the corn and store it in tight bins which can be fumigated during the spring and summer. This works out very well under conditions of light weevil population.

7. Where facilities are available, high-moisture-content corn may be dried artificially before any insect infestation occurs. This is more widely practiced in hybrid-seed-corn production, but it has possibilities for milling corn as well. All seed corn should be treated immediately with DDT or other protectant dusts or slurries, but the DDT-treated corn must not be used for feed or milling.

—Clemson Agricultural College

Your Farm Outlook for 1959

For most farmers, prices will be down and costs up in 1959, but there's still room for profits . . .

Condensed from Michigan Farmer

Art Mauch

THE national economy is looking up. More inflation is in prospect. But net farm income will be down.

This in a nutshell is the general economic outlook for 1959. Here's a digest of what will happen as seen by the Michigan State University department of agricultural economics.

Recovery from the recession seems assured at least through the first half of 1959. One of the brakes to a continued rapid recovery may be a further tightening of the money market. Much of this tightening, which began about mid-year, has been due to the policy of the Federal Reserve Board, which is attempting to prevent further inflation.

If this policy and other events should counteract the economic forces leading the recovery, than the economy might level off during the second half of 1959. On the other hand, a new burst of consumer spending or business optimism next spring could push the expansion into a vigorous boom during the second half of 1959.

Prospects now are that a recovery to "full employment levels" will be slower than in 1955. That recovery was sparked by heavy consumer spending on new autos and by rapid increases in spending by business for new plants and equipment. There is little reason to expect large increases in business spending for new plants and equipment in 1959.

The consumer price index continued to rise through most of 1958 despite the recession. Even with the anti-inflation policies of the Federal Reserve Board, further inflation is likely in 1959 as manufacturers attempt to pass their recent cost increases on to consumers. The average value of the dollar will decline another one or 2 per cent.

Effect on Agriculture

Agricultural income is likely to be lower in 1959 than 1958—

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even though industrial production and incomes will be on the upswing.

Total demand for farm products will be about the same as in 1958. The industrial recovery and a 2 per cent increase in population means only minor increases in food buying.

Supplies of farm products will continue to increase. Larger marketings of beef, hogs, poultry, and eggs are expected. The result—a drop in prices received by farmers. Prices were held higher than expected in 1958, mainly by prices of red meat and most fruits and vegetables.

A farm price decline of 5 per cent for the U. S. is possible. Income in dairy states may hold up better. Dairy prices are expected to be quite stable.

Get sows accustomed to farrowing house three to five days before farrowing.

Adding to the problems of farmers will be the increases in the prices they pay for products. While there may be some weakening in prices of farm-produced items used in production, prices of non-farm produced items will continue their upward climb. There will be a drop in the parity ratio for 1959.

Possibilities of improvement in off-farm employment are not good for 1959. While there may be more jobs available than in 1958 they may only offset the new workers entering the labor force.

Higher Farm Costs

Rising wages in farm machinery plants, higher freight rates, and rising steel prices are pushing up price tags on 1959 model tractors and other machinery by 5 to 6 per cent over 1958. Part of this increase is payment for better products.

Prices on most metal products will continue to edge up next year. This includes fencing, nails, and metal roofing. Asphalt roofing will average about 5 per cent higher than in 1958.

Lumber prices have held fairly steady but may move up by 5 to 10 per cent in 1959. Prices on paint probably will not change much, neither will prices on major pesticides.

Prices on major legume and grass seeds, except sweet clover and bluegrass, are expected to be a little higher during this coming season than last year. Prices paid for seed corn, oats, rye and barley will not change much from last spring.

Little change is expected in fertilizer and lime prices in 1959. Gasoline prices may stay near present levels.

Farm wage rates will be about the same or slightly higher in 1959. The upward pressure on

land prices is expected to continue.

Greater Feed Supplies

Adding feed grain production in 1958 to the largest carryover in history, total feed supplies will be about 11 per cent larger than in the past year.

The government holds about 85 per cent of the carryover of feed grains from previous crops. The CCC will take over at least 12 per cent of this year's feed grain crops. This will put about one third of the feed supply in the hands of the government. Disposal policies of the CCC will continue to influence the price level and movement of feed in the coming year.

Government loans and purchase agreements are again available to corn growers until May 31, 1959. Loans will mature on July 31, 1959, or earlier on demand. Intention to deliver under purchase agreement must be filed within the 30-day period ending July 31, 1959.

Producers who complied with acreage allotments in commercial corn counties can obtain support at around $1.38 per bushel. Noncompliance corn is supported at about $1.08, and corn in the noncommercial corn counties at $1.05.

Corn prices (No. 2, dry basis) at the farm in Michigan should increase seasonally through the winter and spring, moving up to the $1.10 to $1.15 level by next summer. Prices are not expected to advance much above $1.15, however.

Producers who complied with corn acreage allotments should seal their corn under a government loan at $1.38. They can buy any corn needed for feeding purposes at lower prices during the coming season.

The new corn program approved by producers in November will support the 1959 corn crop at about $1.15 per bushel. Support will be available on all corn of eligible quality since the program eliminates acreage allotments and will not designate a commercial corn area.

Plant the thought well, fertilize it thoroughly, cultivate it carefully, and have faith.

—O. A. Hanke

The support price is based on 90 per cent of the average corn price in 1956 to 1958. The $1.15 is slightly higher than 65 per cent of parity, the minimum support under the new program.

The $1.15 support will not guarantee harvest prices at this level in 1959, particularly if the crop should be large. But prices are not likely to drop below $1 (No. 2, dry basis).

Soybean meal prices will not likely advance to the $4.50 hundredweight level reached last sum-

mer. Cottonseed meal will likely average around the $4.25 level during the first half of 1959.

Large quantities of corn would go into the government program rather than on the free market if prices were 15 cents below supports. Prices would move up at least to the $1.15 level later in the 1959-60 crop year.

The hay crop was smaller throughout the midwest than a year ago, although above average. With a large carryover from the previous year, supplies should be adequate in most areas. Hay prices will probably be somewhat higher this winter than last. By

Clean soil added to pig pens each day will prevent anemia.

mid-winter prices received by farmers for baled alfalfa will probably move up near $22 to $23 per ton.

Livestock on Increase

Dairy.—Farm prices for dairy products in 1959 will average about the same as those of the past year. Total production will continue to exceed use in commercial channels. Production per cow will continue to increase and size of herds will tend to become larger. A slight increase in cash receipts but little change in the net income position of dairy farmers is expected.

U. S. production of milk is slightly below a year ago. Farmers are following a nationwide pattern—fewer farms and larger herds.

Population increases of about 3 million persons per year result in greater consumption of dairy products. Per capita consumption in 1959 will probably remain very near the 700-pound level of 1958.

Recent production declines suggest a more favorable balance between supply and commercial use. Government purchases, however, will continue to be necessary in 1959. Milk prices are expected to continue at about the post-April levels if present support percentages are continued.

Eggs.—Production from pullets hatched in the first half of 1959 will average about 2 cents a dozen more than those from the same hatch in 1958.

The average price of eggs produced by January hatched pullets will be slightly higher than for later hatches during the first half of 1959. However, seasonal production differences or the advantages of carrying mature hens longer may make later hatches more profitable on some farms.

Egg prices in the first 6 months of 1959 will generally average 10 to 15 per cent (4 to 6 cents, a dozen) below the same period in 1958. Thus, producers will buy fewer chicks during this period for laying flock replace-

ment. In turn, egg supplies will be lower and prices higher in October, November, and December of 1959 than in the same period of 1958.

Hogs.—The 1958 fall pig crop in the major hog states has been estimated to be up 17 per cent over last year. A large increase in the 1959 spring crop is also indicated.

Little or no seasonal recovery in hog prices will occur during the first quarter of 1959. Prices are expected to average around $18 during this period. By late spring or early summer prices may move up near $20.

A sharp break in prices is expected during the last half of 1959 which could carry prices down to the $13 to $15 range, if the spring pig crop is 12 to 15 per cent larger than a year earlier. If spring farrowings are as much as 20 per cent over last year, prices might fall below $12 by late 1959.

Cattle.—During 1958, dairy cattle numbers continued to decline while beef cattle numbers probably increased by more than 4 million head as farmers sought animals to consume bountiful grain and roughage stocks.

With huge feed supplies now on hand, cattle inventories will continue to increase well into 1959. Further increases will be affected by crop conditions, and consumer demand for beef during the coming year.

Supplies of beef from fed cattle will be relatively more abundant than beef from calves, cows and the lower grades of steers and heifers. This pattern of 1958 will continue well into 1959.

Slaughter cattle prices in 1959 will average slightly below those of 1958 when choice steers in Chicago averaged $27 to $28 and utility cows averaged $18 to $19. The price spread between grades will continue to be unusually narrow as cattle feeders bid for the lighter, unfinished animals. During the winter and early spring of 1959, fed cattle prices will be lower than during the corresponding period in 1958 when temporary scarcity pushed prices for choice slaughter steers above $30 in late March.

Protect young apple trees this winter. The rabbit crop appears to be heavy.

Seasonally large supplies of choice cattle are likely to carry prices down to the $25 to $26 range in the April-June period. Although prices may rise again in the summer, large supplies of long-fed heavy cattle should prevent any big move upward. Profits from cattle feeding will average much less than in 1958, when returns were the largest of recent years.

Sheep.—Slaughter of sheep and lambs during 1959 will probably be little if any larger than 1958. Winter marketings of fat lambs from feed lots and wheat pastures will be larger than a year ago.

However, prices are expected to hold near the $22 to $24 level for choice to prime wooled lambs. Continued restocking of breeding flocks will tend to reduce marketings during the remainder of the year.

Sheep growers should also note that the wool subsidy program has been extended for 3 more years.

Other Crops in 1959

Potatoes.—You can expect the price of potatoes, during the first half of 1959, to be below last year. Anyone storing potatoes should carefully watch the U. S.

The size of a man can be determined by the size of the things that upset him.

Department of Agriculture stock reports for the rate of movement to both consumption use and diversion programs. Unless there is an unusually large movement of potatoes by the first of January, prices will not improve much during the rest of the marketing season.

Storage in 1958-59 is likely to yield little return and may result in large losses if growers find it necessary to destroy some of their potatoes.

Soybeans.—It now appears that 1958-59 will be a year of fairly stable soybean prices. Storage under a government loan is a good bet if prices should fall much below the loan rate.

Without a war scare, soybean prices are not likely to advance beyond $2.10 at the farm. We may expect a large government carryover and a reduction in the support level for the 1959 crop.

"The shortest and surest way to live with honor in the world is to be in reality what we appear to be." —Socrates

Wheat.—The average price of wheat at the farm level will be close to the average support rate of $1.81 through late spring and early summer; then decline in anticipation of the 1959 harvest. Prices of white wheat should be stronger than prices for soft red winter.

Another large crop is likely in 1959. The minimum national average support rate for the 1959 crop has been set at $1.81 per bushel.

Apples.—Storage will be about as profitable during October to March of the 1958-59 season as for the same period during the 1957-58 season.

The facts that lead us to this conclusion are the size of the na-

tional crop, the below average orange crop in prospect, the higher quality of apples from controlled atmosphere storage, and early season apple prices.

Onions.—A smaller national crop and larger declines in the Michigan, New York, and Wisconsin crops will make storage of properly matured onions profitable beyond January 1959. Normally, 60 per cent of the Michigan crop is marketed by January 1st, but a smaller percentage of the 1958 crop will be sold by that time this year. Many commercial growers believe that higher prices might lead to excess onion acreage in 1959.

Living Costs Increase

The outlook for 1959 is for a continued rise in many consumer prices. The prices of foods will probably average about the same in 1959 as in 1958. Housing costs will tend to be higher in 1959. Average cost of gas and electricity will continue to rise.

Prices of household furnishings have gone up only 4 per cent since 1950 and are likely to remain about the same in 1959. Clothing prices will average slightly higher in 1959 than in 1958. Higher wages in the automobile industry and the expected increases in steel costs will stimulate a price increase in new cars.

Cost of medical care will average slightly higher in 1959 than in 1958. Property taxes will probably rise an average of about 10 per cent above the 1958 level for the state.

Labor-Saving Hints on Poultry Handling

Hatchery flockowners can make the hard job of blood testing much easier by following a few labor-saving tips, says Bill Cawley of Texas A&M College.

Be ready to start the testing operation when the hatchery crew arrives, advises Cawley. Have the house divided and all birds at one end. Make sure the partition which divides the house is chicken proof so tested and non-tested birds can't get mixed.

He says there should be five able bodied persons in the working crew besides the tester. This provides three persons to catch chickens, one to cull and one to put them on and off the table. Build a catching pen next to the partition that divides the house. The pen should be built in the end of the house containing the birds.

After the birds have been blood tested, he advises putting them on a 20-22 per cent protein breeder ration.

—Texas A. & M College

Will You Get the Loan?

Follow these suggestions and close your loan with a minimum of time . . .

Condensed from Capper's Farmer

VERY few businessmen operate strictly on a cash basis. So don't be ashamed of your need to borrow money. Instead, shop around until you can get an appraisal of your property for loaning purposes that is in line with your financing needs.

You may borrow from a number of lenders, and there is more or less active competition among them. These include life insurance firms, commercial banks, National Farm Loan Associations of the Federal Bank system, Production Credit Associations, and Farmers Home Administration. There are also many private individuals and scattered miscellaneous lenders.

No matter whom you deal with, the same ground rules apply. The better you are versed in these fundamentals, the more certain you are to come away with the money you need.

Are you sure you know these rules? You'd be surprised how many farmers don't! Here are 15 points to remember:

- Never deviate from the truth.
- Be sure the lender gets your legal name and address correctly spelled. Also the name of your mate and whomever is to be obligated as mortgagor.
- Be prepared to state exactly how much you want, taking into consideration the costs, if any, of processing the loan.
- Bring the abstracts of title, continued to date if possible, when borrowing on land. If you don't have them, have the exact legal description of the land, as well as the correct name and address of the present title holder or mortgagee.

If you are borrowing on chattels (personal or movable property, such as furniture, livestock, or farm equipment), be able to list and describe them correctly.

- If the loan is on land in an area of mineral activity or other developments, be able to tell the lender the percentage of the rights you own on the land.
- Be able to tell how much the real estate taxes are on the land or how much the personal

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property taxes are on your chattels. This will enable the lender to check valuations.

● Be prepared to state whether you want to make annual or semiannual installment payments. Also what month, or months, you desire to make payments.

● Be able to give the acreage of the individual parcels of land, as well as the names and addresses of the different persons from whom you bought them.

Also have on hand the date of purchase, and the price and terms of the sale. You often will be asked to state approxi-

Remember when dime stores carried only ten-cent items??

mately how much you spent on the land or the buildings for improvements since the purchase. This enables the lender to figure your approximate total investment.

● Be prepared to list your assets. Generally your own valuation is taken. Your assets will include a description of any land you own in addition to that to be included in the mortgage. The list will include livestock, machinery, autos, feed, marketable produce, stocks and bonds, collectable notes and accounts, and household goods.

● Be able to list your liabilities. This means any present liens or amounts due for deed on any land to be mortgaged, as well as on land not to be included. All unpaid real estate and personal property taxes should be listed.

Chattel mortgages, crop mortgages, unsecured debts and notes of all kinds, any special assessments, and any obligation outstanding should be fully presented. Also give any contingent liability on endorsed notes, bonds, bank stocks, or guarantees of any kind. Be frank and honest; it will always be to your advantage.

● In order to evaluate your ability to repay some lenders may want to know how many acres of different crops you planted the past year and what the yield was in each case, as well as how the crop sold. They also may ask about your total sales and income.

● The purpose of the loan, especially if it isn't for land purchase, concerns the lender. How will you spend the money? Be able to discuss this phase intelligently with the lender.

● You can expect questions about your personal history, and some of these may be quite involved. You will probably get questions as to your age, age of your mate, number of children, year you were married, how much life insurance you carry, and so on.

● It's a good idea for a man and wife to make application to-

gether. But agree upon which is to be the spokesman. Above all, do not make emphatic corrections of each other's statements.

● If your loan is for construction of new buildings, you generally will be asked to submit brief plans and specifications, as well as a cost estimate.

It's a good idea to bring a copy of the insurance policies on your buildings. Some lenders like to see if your coverage checks out with their insurance requirements. This also gives indication of the value of your actual improvements.

With a clear-cut presentation of these points, you can be sure of a favorable impression. At the very least, you can close your loan with a minimum expense of time. At the most, the way you present your case may decide the loan in your favor. And, furthermore, it may provide a firm basis for future negotiations if you need refinancing or a future loan.

Farmers of the Future

Farming of the future will not be the inherited, traditional occupation it once was. Nor will it be entered into because one has a "green thumb" or likes animals.

"Farm and city differences will disappear," Helen G. Hurd, Rutgers University sociologist declared. "Of course, there will be farms and farmers, but they will be traveled, educated people, accustomed to the conveniences and comforts of city life.

"They will work the same hours, expect the same rewards, spend money for the same consumer goods. Farming will be a business, like any other business."

Professor Hurd described some of the changes that have taken place since 1790 when the first census was taken. Then there were about 5 persons per square mile in the country as a whole and 95 per cent of the American people lived on farms.

Today the average density is 50 persons per square mile and only 36 per cent of the country is rural. Over one-half of the rural population lives within an hour's ride of a city of 100,000 or more.

—Rutgers University

Get More Eggs On Less Feed

It takes 7 pounds of low energy feed to make a dozen eggs. Only 6 pounds of high energy feed will do the job . .

Condensed from
Wisconsin Agriculturist

WOULD you like to produce eggs with less feed? Who wouldn't? And it can be done.

High energy rations is the answer.

What is a high energy ration? How does it differ from regular rations?

High energy feeds pack more calories into the same pound. In other words, high energy feed is less bulky.

Comparing two feeds, corn and oats, spells out what we are talking about. A pound of corn contains 1100 calories of productive energy. A pound of oats contains 800 calories. Most high energy rations are rich in corn.

Layers Need Proteins

A laying hen needs proteins, vitamins and minerals which she cannot get out of grain. So it's essential to balance high energy grains with either natural or manufactured sources of proteins, vitamins and minerals.

To understand how this is done let us look at feed proteins. Corn contains around 9 per cent protein. But we say it is poor quality protein for poultry. Why is it poor quality?

Proteins are made up of different kinds of amino acids. We could compare them to the bricks that make up a wall.

Poultry needs several different types of amino acids. Corn is very low in some of the amino acids necessary for healthy, vigorous laying hens.

In high energy rations these necessary amino acids not found in corn protein may be added by mixing in the feed a small amount of a manufactured chemical—high in amino acid.

One of these added to improve the quality of corn is niacin.

Reprinted by permission from Wisconsin Agriculturist, Racine, Wisconsin

By supplementing corn proteins with necessary amino acids we improve or balance up the corn protein.

Why fuss around with all this? If we pack more feed value into each pound of feed the laying hen can cut down on the amount of feed she must handle to get the necessary energy for body activity and for the eggs she lays. We pack the feed into a smaller package.

Feed manufacturers are already using these finding to turn out higher energy laying mash and feed supplements.

What happens when hens eat high energy rations? They need less feed to do the same job. In tests at the University of Illinois,

What this world needs is more open minds and fewer open mouths.

hens fed high energy rations laid 51 per cent. Those fed low energy rations laid at the rate of 48 per cent.

At the end of the experiment birds fed the high energy rations weighed 5.8 pounds. Those fed the low energy ration weighed 5.6 pounds.

But the birds with a high energy feed produced a dozen eggs on 1.2 pounds less feed than the low energy rations.

It took 7.3 pounds of feed for the hens to produce a dozen eggs when they were fed a low energy ration. They did it on 6.2 pounds when fed a high energy ration. These were with heavy type birds.

Weight Is Not a Factor

But lighter type layers gave about the same results. They ate 6 pounds of feed to lay a dozen

The Rath Packing Company of Waterloo, Iowa offers to pay farmers $1.00 a head to cover the cost of grub treatment for fed cattle slaughtered at their plant between December 1, 1958 and May 1, 1959. Cattle must be treated with systemic insecticides at least 60 days prior to slaughter.

eggs when they were fed a low energy ration. The same birds cut their feed consumption to 5.1 pounds per dozen of eggs when they were fed a high energy ration.

Scientists still search for ways to build a higher energy ration so that hens can turn out a dozen eggs on even less feed.

The big problem isn't always just finding the right mixture or additives. Costs are important, too.

So the scientists must find a high energy feed that is not only efficient but one that can be prepared at a reasonable cost. The one must be balanced against the other.

Feed To Cut Poultry Costs

Feed waste, low-protein, and low production are factors which control poultry profits . . .

Condensed from
Successful Farming
W. R. Whitfield,
Iowa State College

IT'S not surprising that some egg producers don't make good profits from their hens. Profits depend much on cutting feed cost to the minimum because feed is the biggest cost of all. It amounts to about 60 per cent of all the costs.

One place to cut costs is to buy high protein feeds only. Facts from the Iowa Demonstration Flock show that producers who buy all-mash feed spend about 50 cents per hen more annually than those who buy high-protein concentrates to feed with their home-grown grain.

The skirt of a Seminole Indian woman's dress may contain as many as 5,000 pieces, all sewed together to form clever patterns.

Figures below show the difference it makes in the cost of the ration and cost per dozen eggs:

	Over 20 % protein	20% or less protein
Average cost of ration (per 100 pounds)	$3.05	$3.55
Average cost of feed (per dozen eggs)	15.6c	18.9c

Note: The hens in both groups averaged 218 eggs per hen.

One producer, for example, bought an all-mash feed for a period of 3 months last spring. Finding his feed cost too high to leave a profit, he changed to a 26-percent protein feed and fed it with his own grain. His cost per hundred pounds of ration dropped from $3.68 to $2.68, leaving a saving of $1.

The most common mistake is to fill the feeders too full or to use feeders which allow too much feed in the hopper where the

Reprinted by permission from Successful Farming, Des Moines 3, Iowa

hens eat. As much as 45 per cent to as little as 2 per cent of the feed is wasted, depending upon the depth to which the feeder is filled. The largest amount is wasted by filling the feeder full of feed. The least by having it ⅓ full.

The largest saving can be made by getting high egg production through the entire year. Although a high-producing flock will eat more feed than a low-producing flock, the feed requirement per dozen eggs is much lower. For example, the low-producing Demonstration Flocks averaging 170 eggs per hen, produced $1.80 less eggs than those laying 241 eggs. It's true that the high producing hens ate about 10 pounds of feed extra, but at 3 cents per pound of ration this amounted to only 30 cents, leaving an extra profit of $1.50 to the high-producing flocks.

Producers who made all of these mistakes of wasting feed, buying low-protein feed, and getting low production had a grand total in extra costs of $2.40 per hen. This means that producers who avoided all of the practices could make $2.40 more profit per hen than those who followed a wasteful program.

Cold Eggs Taste Better

If you take eggs from your refrigerator and leave them out in the kitchen long enough to warm up to room temperature, they begin losing their good flavor. To prevent this flavor loss, U. S. Department of Agriculture researchers advise that eggs should not be exposed to room temperatures any more than necessary. Bring eggs from store to home refrigerator as quickly as possible. Put them in the part of the refrigerator where they will keep coldest without freezing. At mealtimes, take out the eggs you need and leave the rest in the refrigerator.

In laboratory experiments, newly-laid eggs refrigerated for 13 weeks and then soft-cooked had as good flavor as Grade-A eggs. Eggs refrigerated for 25 weeks in the tests still gave Grade-A flavor to baked custards and angelfood cakes.

In these special egg-flavor tests, eggs were stored under carefully controlled conditions. Most homemakers, of course, don't want to keep eggs this long. However, tests show that prompt, continuous refrigeration in the home as well as on the farm is necessary to hold the fresh flavor of eggs. *—University of Delaware*

Making Hogs Pay

Hog numbers are increasing and you're going to have to do an efficient job of producing pork to show a profit. Here's a round-up of sound ideas that will work for you . . .

Condensed from
National Livestock Producer

Stewart H. Fowler, Louisiana State University

HAVE you checked the figures on your swine operations lately? With $25 hogs, it hasn't been essential, however, with a heavy increase in fall farrowing, it may be necessary to increase efficiency of hog production in order to declare a suitable dividend on your investment next year.

When the offspring of an additional 700,000 sows start to market, the increased marketing is bound to be reflected by lower prices. The old law of supply and demand still operates in spite of numerous government regulations, supports and restrictions.

The producer who places hogs of the right type on the market at the least cost next year is the one who will continue to look on the old sow as the "mortgage lifter." His less efficient neighbor may feel like burning down his farrowing house or trading his sows for most anything but hogs!

The essential profit-making phases of swine production are breeding, feeding, disease and parasite control, and marketing. The success of the entire swine enterprise can never exceed the limits imposed by the shortcomings of any one of these four phases. The importance of the breeding phase is summed up in the motto of the Washington Swine Breeders Assn.—"You can not raise today's hogs with yesterday's sires and be in business tomorrow."

An outbreak of hog cholera can wipe out all of the production advantage obtained from a sound, well-balanced feeding program. Also, the entire superior job of breeding, feeding and sanitation can be sold short by a poor job of marketing.

Let's consider these four phases of your swine enterprise and set forth goals or objectives for each. Then, the next step in your "self-appraisal program" is for you to

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take time to evaluate your present accomplishments in terms of these objectives.

Large Litter is Important

First, the main objective of your hog breeding program is to *produce larger litters of thrifty, market-topping pigs.* In this double-barrel objective, a large litter is the starting point. To this end, research indicates that the number of pigs born per litter is determined by three factors: The number of eggs released by the sow, the percentage of the eggs that are fertilized, and the percentage of fertilized eggs that produce living pigs at farrowing time.

Recent research highlights the fact that there are a number of ways that you can favorably influence these factors that determine litter size. For example, the number of eggs released at mating time is increased by selecting gilts from large litters of 10 or more pigs and out of sows that consistently produce large litters. Selecting gilts with excellent femininity and extra body length also helps. Flushing should not be overlooked either. This means placing your sows on a lush pasture or on an extra palatable, well-balanced ration about two to three weeks prior to breeding so that they are gaining in flesh when they are bred. A fourth consideration of proven value is the addition of 15% alfalfa leaf meal to the prebreeding ration.

In general, if the boar used is fertile, 90% or more of the eggs released will be fertilized. However, fertilization rates may be maintained or increased by: (1) proper nutrition of the sow prior to breeding, (2) correct management and use of the boar, and (3) two services allowed 12 to 18 hours apart.

The greatest loss in swine production is from the number of fertilized eggs that fail to produce living pigs at farrowing time. Actually about 30% of your "bacon sprouts" fail to see the light of day. Some die early during the pregnancy period and are absorbed back into the sow's body. Others die late during pregnancy and are expelled at farrowing as mumified pigs.

Economy has been defined as a way of spending money without getting any pleasure out of it.

Unfortunately, far too little is known about the causes of this embryonic loss, and we are a long way from being able to reduce it to a minimum. However, there are some management practices that apparently help reduce this loss.

These include: (1) limiting the feed intake of pregnant sows either by hand feeding or by self-

feeding high-fiber feeds; (2) feeding additional amounts of animal protein (meat scraps, fishmeal, milk products); and (3) providing for adequate exercise of the pregnant sows.

The second step in the first objective is producing thrifty, market-topping pigs. This goal is started by mating gilts of good acceptable meat-type to a thrifty, growthy, well-muscled boar. The goal is finally reached by matching the sound breeding program with equally sound feeding and sanitation programs.

Gaining Ability is Inherited

The goal for the feeding phase of the swine enterprise *is to produce 100 pounds of pork on less than 350 pounds of feed.* Quite a few management factors will help toward this goal. As a starter, use breeding stock with records of efficiency gains. Efficiency of feed utilization is fairly high in heritability, which means that efficient-gaining boars and sows will transmit a large portion of such efficiency of feed utilization to their offspring. Performance-tested boars, with records of rate and economy of gain, are becoming available in most swine-producing areas, and such superior performers are a sound investment for the producer of market hogs.

Up to 30 per cent can be added to the life of farm machinery by giving it proper winter care, and time will be saved in getting the machinery back on the job.

The proper balancing of grains with protein supplements will also aid in obtaining efficient gains. A swine producer in Washington's Columbia Basin said last year that he could not afford to feed a protein supplement and was raising hogs on corn alone. When he looked at his crop of 6-week-old pigs averaging less than 20 pounds in weight, he should have realized that he couldn't afford not to feed a protein supplement! A combination of proteins of plant and animal origin (such as two parts soybean meal and one part tankage) is a better bet than an animal or plant protein alone. The combination provides a more complete balance of essential amino acids, which promotes more efficient gains.

Feed Minerals and Vitamins

Under average conditions, nutritional levels of antibiotics will reduce feed requirements about 5% and increase rate of gain from 5 to 20% from weaning to market weight. The level of antibiotic required for maximum response varies with the antibiotic, the individual animal, the environment, and the type of ration. In general, however, 10 to 20 grams of antibiotic per ton

of finished feed will usually give maximum response.

Proper attention should be given to vitamins, minerals and water. Fortunately, good pasture will furnish most of the necessary vitamins for swine. Insufficient minerals or improper mineral balance in swine rations will prevent you from realizing the full benefits of better breeding. A mixture of 2 parts of steamed bonemeal, 2 parts ground limestone, and one part iodized salt is an excellent mineral supplement which may be kept available to hogs at all times in a mineral feeding box.

The importance of supplying plenty of good, clean water is often overlooked. Actually, a lack of a constant supply of clean water is still our most widespread deficiency in farm animals. Thousands of tons of feed are wasted each year because our animals do not get enough water to help digest and utilize their feed. Water requirements of swine vary from one-half gallon to 1½ gallons per 100 pounds liveweight.

Don't abuse the slow horse. Maybe it was intended to pull heavy loads.

An infestation of internal or external parasites can completely destroy feed efficiency on some farms where poor sanitation exists. It is debatable whether the producer is feeding hogs or worms! Also, the mangy hog that spends most of his time rubbing and scratching against fence posts and buildings is burning up a considerable amount of feed for no profitable good.

Shades in summer and proper shelter in winter will accomplish quite a saving in feed per hundred pounds gain. In extremely hot weather, a pig will reduce his intake of feed in an effort to reduce the production of body heat. Thus, his maintenance requirements are stretched out over a longer period of time, and feed efficiency declines.

Burn Feed to Keep Warm

On the other hand, a young growing pig when exposed to extremely cold weather must burn a considerable amount of his feed to maintain his normal body temperature. Hogs weighing around 200 pounds use feed most efficiently at 60 degrees F., and pigs weighing 100 pounds gain more on less feed when they are kept at about 70 degrees F. than at other temperatures. The amount of feed saved at these optimum temperatures will pay for good pig housing in a very short time.

So much for the feeding phase —let's consider the sanitation phase of your swine enterprise. The desired goal here is *to reduce or eliminate losses from dis-*

eases and parasites. The old saying "an ounce of prevention is worth a pound of cure" must have been coined by a swine producer. At least, the meaning was never truer than when applied to swine disease control.

As a starting point, an attempt should be made to reduce periods of stress, which make the animals more susceptible to disease and parasite invasion. Never impose too many stress factors at the same time. For example, if you wean, worm, and vaccinate your pigs at the same time, you are courting trouble. It helps to feed a high level of antibiotic (50 grams per ton of complete feed) during periods of stress, and we should keep an eye on the use of tranquilizers as a means of reducing the effects of stress factors in live stock.

A definite worming program is real insurance on your swine investment. There are a number of compounds available that are very effective in removing intestinal roundworms, which are the most prevalent internal parasite of swine. Three-fourths of one per cent sodium fluoride in dry ground feed for one day is an effective old standby. Pigs should be treated when about 8 weeks old and again at about 16 weeks of age. Hygromycin is the latest worm-control agent proven to be very effective with hogs. If fed at the recommended 12,000,000 units of activity per ton of finished feed from the time the pig is weaned until 100 pounds in weight, hygromycin controls not only roundworms, but nodular worms and whipworms as well.

If at all possible, a pasture rotation system should be followed. It also helps to completely vacate your central swine barn for 30 days at least once each year. During that time, the barn may be thoroughly cleaned with a steam jenny or with hot lye water and plenty of "elbow grease," which should be followed by a complete spraying with an approved disinfectant.

Increases in yield per acre in corn, wheat, oats, barley, and grain sorghum have resulted in 20 per cent more total grain production than was the case 30 years ago. This greater production is also grown on a 10 per cent smaller acreage.

Do you have a quarantine shed on your farm? It will pay for itself many times over in providing isolation for sick and new stock. It is advisable to isolate all new animals for a period of 30 days, during which time they may be tested and observed for various diseases.

In most areas, it is advisable to test all breeding stock once a year for brucellosis (Bang's

disease), and it will probably pay in the long run to vaccinate against cholera and erysipelas.

If feed is secured in second-hand bags, make sure the bags have been sterilized prior to re-use. Also, if you are not currently using disinfectant pools or guards at entrances to your hog houses, you may wish to consider their use as an added protection against spread of disease. A burlap bag saturated with crude oil and cresol placed in a shallow pan works fine.

We all believe in the "good neighbor" policy, but it will pay

Feed ewes one half pound of grain before lambing and one pound per day after lambing. Feed good quality legume hay or provide winter grazing.

to limit visitors to your hog lots and buildings. A good investment is several spare pairs of rubber overshoes and boots of various sizes which can be furnished visitors for trips around the premises.

Don't Visit Sick Herds

Think twice before visiting a sick herd—and then don't do it! It's a great temptation to try to d i a g n o s e your neighbor's troubles, but it's best to leave this up to the veterinarians. This may help prevent the neighbor's troubles from becoming your own.

This brings us to the last phase of the swine enterprise—marketing. Here we must set a rather big goal or objective—*to place hogs of the right type, on the right market, at the right time, in the right condition, at the least possible cost.*

Marketing is the phase of the enterprise in which most of us are basically interested, because

Prejudice is generally to the bone—located in the head.

it is at this point that the profit or loss of the enterprise begins to "show through." It is highly regrettable, however, that it is at this point that an otherwise well-managed production program breaks down on many farms. The cold, hard fact remains that a highly successful breeding, feeding, and sanitation program can progress no further than the marketing program to which it is coupled.

The only type of hog to be producing for today's market is the meat type. Your hog should be well muscled with the maximum of lean meat development in the primal cuts and with only a minimum amount of fat present to give firmness, extra flavor, tenderness and palatability to the cuts. The meat-type hog is as economical to produce as the fat type; and in some sections of the country, they bring as much as

$2 per cwt. higher price. This is not universal, but at least we are headed in the right direction.

If you have a choice of outlets for marketing your hogs, you are faced with the questionable decision as to which is the right, or best, market. Consider the probable price, cost of services and transportation, and losses from shrinkage for the various markets. Then, make your decision. Remember, however, that the market that is best for you at one time is not necessarily the best one a year, or a month, or even a week later.

Hog Prices Follow Cycles

In considering the right time to market your hogs, remember that hog prices usually follow cycles. Study these cycles for your area, and then breed and feed to avoid the lowest periods. You may wish to consider a multiple-farrowing system, such as breeding two sets of sows to produce four pig crops per year. In this way, you are never caught with a lot of hogs when prices are low and will always have a few to sell when prices are high.

To market your hogs in the right condition, they will be of most desirable slaughter weight (usually somewhere between 180 and 220 pounds), grade U. S. No. 1 on quality and finish, cut out high yields as a result of less fill and reduced shrinkage, and hang up bruise-free carcasses. If you develop a name for producing "reputation" hogs, it will secure you a premium on most markets. Uniformity in the load will usually pay extra dividends also, as there is a tendency for the buyer to associate uniformity of color in a load of hogs with uniformity of quality of carcasses.

Finally, placing hogs on the market at the least possible cost is accomplished by sound planning and management of the breeding, feeding, sanitation, and marketing phases of the swine enterprise. "Least cost" production is not possible if you let any one of these phases slip.

A man picks a wife the same way an apple picks a farmer.

The swine producer who can consistently meet efficiency goals in his breeding, feeding, sanitation, and marketing programs is the producer who makes money year in and year out with hogs. On the other hand, the producer who slights any one of these phases of successful hog production is the fellow that is consistently "in and out" of hogs. For the sake of your hogs and your bank account, take a rather critical look at your swine program today. You may be glad next year that you did!

Plump Turkeys With Less Protein

Providing the right amount of protein in a turkey ration is important, but even more important is the quality of the protein . . .

Condensed from Ohio Farm & Home Research

R. D. Carter and *J. W. Wyne*

HOW much protein do young turkeys need for best growth?

Tests at the Ohio Agricultural Experiment Station indicate that growers might be feeding their birds mash richer in this nutrient than is necessary.

Feedstuffs that provide protein and energy make up the largest cost of ingredients that go into a turkey ration. Protein is probably the most critical of these nutrients.

Not much is known about the protein requirements of turkeys between the ages of eight and 16 weeks. Therefore, trials were conducted with birds of this age, using both Large-type and Small-type White breeds.

Contain Protein

Many feeds being used by growers during this period contain as much as one-fourth protein. But the costs show that young birds make just as fast gains and feed conversion is as good with much less protein than this amount.

Furthermore, by supplementing very low protein rations with certain amino acids—building blocks needed for protein manufacture—the amount of protein needed in a ration to get good gains can be reduced. This system isn't practical yet because of the relatively high cost of some amino acids. Two of these tried in the tests were methionine and lysine.

When these two amino acids were mixed in with turkey feed with only 14 per cent protein, the turkeys grew well and feed conversion was good in the Small-type Whites.

Without added amino acids, rations containing 20 per cent protein were found to be adequate for Large-type White turkeys from 8 to 16 weeks. A ration with as low as 17 per cent protein gave almost as good weights in Small-type Whites as rations with larger amounts of protein.

Reprinted from Ohio Farm and Home Research, Ohio Agricultural Experiment Station, Wooster, O.

Three trials were conducted to determine the optimum protein requirement of young turkeys.

In all tests, the poults were raised up to 8 weeks on a 26 per cent protein, all-mash starter. Then they were weighed and distributed into experimental pens.

In the first trial, rations containing 20, 23 and 26 per cent protein were fed to duplicate groups of Large-type White turkeys from 9 to 16 weeks. In the second test, Small-type White turkeys were fed rations containing 17, 20 and 23 per cent protein from 8 to 16 weeks. In the last trial, Large-type Whites were used again and fed rations containing 14, 17 and 20 per cent protein.

More than one good theory has been killed by putting it into practice.

Regardless of the level of protein, no differences were noted in the average weight of birds in the first trial at 16 weeks. Turkeys on the 20 per cent protein ration grew just as well as the birds fed the 26 per cent. Feed conversion, however, improved as the protein was reduced from 26 to 20 per cent.

No Difference

In the second trial there was essentially no difference in average weights of the birds at 16 weeks, regardless of protein level. Birds fed the 17 per cent ration weighed a little less than those fed the higher levels, but the difference wasn't significant.

As in the first trial, feed conversion improved as protein was reduced.

To find the level at which protein might be detrimental to turkey growth, the third trial was conducted. Protein was cut back to as low as 14 per cent. This lowest level wasn't adequate to keep Large White turkeys growing fast. Rations with 17 per cent were on the borderline. Just as in the first test, 20 per cent protein rations brought about optimum growth and feed conversion.

The bigger type bird needs more protein, tests bear out. Twenty per cent was the lowest level of protein that could be fed and still get good growth in the larger type turkeys. But with the small birds, protein could drop as low as 17. Large-type Whites average about 20 per cent heavier at 16 weeks than the Small-type. At this age, Large-type White males are about 26 per cent heavier than the females. Small-type White males are about 32 per cent heavier than females. This brings up the future possibility of formulating different rations for males and females. Then females could be

fed cheaper than males.

Providing the right *amount* of protein in a turkey ration is important, but even more important is the *quality* of the protein. Amino acids must be present in the feed in the right balance so the birds can properly use them. In most poultry feeds, methionine and lysine are the acids that are limiting.

In tests, methionine alone did not stimulate turkey growth when added to a 14 per cent ration. Lysine improved growth when fed at 0.15 per cent level but improved it even more at a 0.31 per cent level.

If the cost of lysine falls, turkey growing rations could be improved by its addition. But now it would be more economical to feed the 17 or 20 per cent ration, depending on whether you raise a small or large turkey.

Feeding Small Number of Steers Unprofitable

Cattlemen in the High Plains who feed less than 100 steers at a time are not likely to get much "extra" income for their work.

Based on a 20-year study at the Big Spring Field Station in Texas a margin of profit of at least four cents a pound is required to give an income equal to the average price paid for farm labor. And that doesn't include the risk in feeding steers.

From the study, researchers have prepared a guide for cattlemen in the high plains to use in determining whether feeding steers is a profitable alternative to the cash market for grain sorghum under various feed-livestock, cost-price situations.

"A cowman goes into the feeding season knowing the feed cost and the cost of steers for the feedlot, and he can assume the rate of gain to determine the amount of beef he will produce," says Agricultural Economist William F. Hughes. "What he doesn't know is how much he will get per pound on the market when he sells his steers."

So with various situations recorded from actual tests, a cowman can use the guide in making comparisons of cost of steers, feed prices and market prices during the 20-year period to determine whether or not he should feed. The studies are based on feeding 100 steers for 180 days.

Write Agricultural Information Office, Texas A. & M. college, College Station, Texas. Ask for "Economic Returns From Grain Sorghum Fed to Steer Calves on Dryland Farms of the High Plains," Miscellaneous Publication 295. *—Texas A & M College*

Pie-Shaped Dairy Layouts

This story tells how dairymen are cutting labor costs with pie-shaped corrals. Herdsmen moving cows to and from the milking barn traveled 35 feet per cow in rectangular lots as compared to 12 feet in pie-shaped corrals . . .

Condensed from Better Farming Methods

C. F. Kelly, University of California

MANY dairymen, faced with a dwindling labor supply, are looking for new ways to reduce the labor required for milking cows.

Preliminary work by University of California engineers indicates that pie-shaped corrals for dry lot management of dairy cattle offer many dairymen a chance to get more for their labor dollar.

Pie-Shaped Corral Study

Pie-shaped corrals—so named because each pen is shaped like a wedge of pie—have an entrance gate at the point and the feed manger around the circumference. The shape and size of the pen are determined, as with rectangular corrals, by the number of cows feeding at the manger, (usually allowing 2½ feet of feed space per animal) and the area needed for loafing (ranging from 400 to 930 square feet per animal).

This survey, which included six rectangular corrals and seven pie-shaped, was undertaken because a previous study had shown that one labor problem was the time required for the milker to bring cows from dry lots into the milking barn.

In several instances the cows' slow pace—rather than the efficiency of the milker—was the factor slowing down the overall milking rate.

The delay caused by empty barns or holding corrals appeared to be due to time wasted in travel to and from the feed lots, along long lanes, opening gates, etc.

The data from this study, while not yet completely analyzed, indicates several points which the farmer must consider when designing a system of pens and lanes for dry-lot management of his herd.

- The travel by the herdsmen in moving cows to and from milking barns averaged 35-feet per cow for rectangular corrals, 12 feet for pie-shaped corrals.

Reprinted by permission from Better Farming Methods, Mount Morris, Illinois

● The time per pen for the operation averaged 7 minutes for the rectangular, 2 or 3 minutes for the pie-shaped corrals.

● These milking herds averaged 194 cows, with an average of 36 cows per pen (ranging from 20 to 60).

● Installation of remote controls for gates is much simplified because the gates between the pie-shaped corrals and the holding pens are so close to the barn. (However, none of the farms studied used such controls at this location.)

● A group of pie-shaped corrals must have gates in the common sides, preferably towards the wider end, to allow manure removal equipment to enter and maneuver efficiently.

Other Factors Besides Corrals

The rate at which cows can be moved between the milking barn and feed corrals is affected by factors other than arrangement of corrals, lanes, and gates. Here are a few other considerations:

● Elevated stall barns complicate corral management because when the holding corral must be filled with a new string to keep the milking units in constant operation there are still several cows from the previous string in the barn.

● Of course the distance walked by the operator per cow will be less as the number of cows per corral is increased, other things being equal.

● On the average, about one-third of the operator time and travel involved in moving cows to the barn was spent in "rounding up" the cows in the pen in order to get them into the lane and on their way to the milking barn.

● While it was not possible to measure the time saved by man passes on certain of the dairies, it was evident that much travel and energy were saved by not having to open a heavy gate or climb a corral fence, in those cases where the operator moved without cows. Most of the man escapes were 11-inches in the clear.

Buy fertilizer on the basis of analysis. Your state law probably requires that each bag carry the manufacturer's guarantee of analysis on the label. Bulk lots should be accompanied by invoice bearing analysis at delivery.

What We Decided

A good many more dairy corral layouts of each type should be studied before we can form definite conclusions, but based on our short study to date, and general information from previous dairy studies, we have some tentative suggestions on dairy layouts and arrangements as fol-

lows:

If rectangular lots are used, the milking barn should be at one end of the cow movement lane or near the center of the movement lane if the farmstead permits.

Pie-shaped corrals have some advantages. The distance from lots to milking barn can be much less.

There are some complications in moving cows from corrals to milking barn if an elevated stall barn with only a few stalls is used, but we believe better arrangements can be made than those we have seen.

Better or different equipment or better use of present equipment, such as gate opening and closing mechanisms and controls —perhaps more remote controls, feeding equipment in milking barn and corrals, improved water system, hose nozzles, etc., may help solve some problems.

Dairy Cows Need Plenty of Warm Water

The average dairy cow will drink 12 to 15 gallons of water a day. A high producer may need as much as 40 gallons. The amount will vary with the temperature and the amount of succulent feed in the ration.

Dairy cows like their water often, too. They will take an average of 10 drinks a day if they have free access to water in tanks or in pressure bowls. Experiments have shown that cows will produce 3 to 4 per cent more milk when given free access to water than when watered twice daily, and 6 to 11 per cent more than when watered once daily.

They will also drink more when they get warm water in a protected place than when they have to drink through a hole in the ice in an outside unprotected tank. In addition, it costs less to heat water with coal, oil or gas before the cow drinks it than afterward with high-priced grain or roughage.

—University of Illinois

In Europe, as in the United States, small, privately-owned woodlots are the least productive forest areas. National governments show considerable interest in the management of these woodlands and many types of financial and technical aid are offered to the owners. In some countries — Norway, Sweden, Finland, Portugal, and Switzerland — restocking of cutover areas is required by law.

Which Is Most Profitable? Short or Long Wool—

The economic advantages of a clip in each of three length classes are compared in this article.

Condensed from Farming in South Africa

J. A. A. Baard and *D. F. Troskie,*
Grootfontein College of Agriculture

ALTHOUGH some sheep farmers are forced by circumstances to shear every six months, there is considerable difference of opinion as to the advantages and disadvantages of a six-month and a twelve clip.

The wool-processing industry distinguishes between:—

a) Long wool—length 2¼" and over.
b) Medium wool—length 1¾" to 2¼".
c) Short wool—length ¾" to 1¾".

Many farmers are of the opinion that wool growth decreases as the wool becomes older and that a larger quantity of wool is therefore obtained if the sheep are shorn half-yearly.

Experiments in this connection have been done at the Grootfontein College of Agriculture as well as at research institutes in America and other countries. The results obtained by means of length and thickness readings showed that:

(a) The average monthly growth remains constant throughout. In other words, the wool growth will be the same during the first six months after shearing as during the second six months.

(b) The fibre growth in length as well as width is determined by nutritional conditions. Poor nutritional conditions retard growth as regards both length and thickness.

Advantages of Half-Yearly Shearing

1. The sheep can maintain its condition under less favorable conditions. Research workers in America have found, however, that under favorable conditions there is no difference between the increase in body weight of sheep shorn every six months and those shorn only once each year.

2. It is often contended that

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a higher lambing percentage is obtained from sheep shorn every six months. An experiment conducted by American research workers, however, showed no increase in the lambing percentage of sheep shorn every 6 months.

3. When the wool becomes long, sheep in poor condition or ewes heavy in lamb tend to fall in such a way that they cannot regain their feet. Losses due to this factor can, however, be eliminated by means of sound management.

4. The part of the fibre that grows during periods of drought is thin and tender and the whole staple may consequently show a break.

5. When grasses are particularly abundant, it is definitely better to shear when the wool is still short rather than to allow the sheep to suffer throughout the winter. A further advantage is that the second clip will contain less seed.

6. On mountainous farms animals with heavy fleeces find it difficult to scale the mountains in search of pasture if they are not shorn every six months.

Disadvantages of Half-Yearly Shearing

1. In the case of sheep with wool of a reasonable density and substance, the tip of the wool sheared at twelve months should be less than all the tip in two six-month clips.

In an experiment at Grootfontein, wool sheared at twelve months gave a higher scoured yield than that obtained from sheep of the same group which were shorn at six months. A possible explanation for this is that short wool has a larger tip in relation to the length of the staple as a whole.

2. A flock can be improved considerably by means of regular and accurate classing.

The best time for classing is when the wool is as close as possible to twelve months old. Certain wool characters undergo

Praise makes a good man better and a bad man worse.

considerable changes between the six- and twelve-month stage.

Fleece characteristics such as body, substance, staple formation, tip and yolk flow, show up much better in six-month wool. Selection for the above-mentioned characteristics is therefore hampered by the fact that flaws in regard to these characteristics are not as easily discernible in six-month wool as they are in twelve month wool. For this reason farmers always prefer to purchase rams in full fleece.

Economic Aspects

The economic advantages of a clip in each of the three length classes, can best be compared by determining the income derived from each type of clip.

Chimney Smoke

by Irene Rudie

Here's a clean year,
A white year.
Reach your hand and take it.
You are
The builder,
And no one else can make it.
See what it is
That waits here,
Whole and new;
It's not a year only,
But a world
For you!

—Mary Carolyn Davies

★ ★ ★

Advice on axe sharpening from a farm almanac: Stop grinding before the metal gets hot, or the axe may lose its temper. The same advice applies to certain family situations.

★ ★ ★

Isn't it strange with all the talent available that no one has written a New Year song to catch the public fancy? We go on from year to year with "Grandfather's Clock" and "Auld Lang Syne" which aren't really New Year songs at all.

★ ★ ★

Trying to keep a perfect attendance record in school may sent a child out among his classmates when he is a living incubator for an infectious illness.

How many times does a mother try to force a small arm into a sleeve with a torn lining before she takes time off to mend it?

★ ★ ★

Have you ever heard anyone involved in a car accident admit that it might have been caused by his own carelessness?

★ ★ ★

This is the season for lopping off toes and fingers through "axidents."

★ ★ ★

Those items in country newspapers which list happenings of 10, 25, or 40 years ago must be irritating to people who try to keep their ages secret.

★ ★ ★

Small boy, disgustedly, after listening to a radio show: "Aw, they always say they're going to sing a little number and they just sing some more words!"

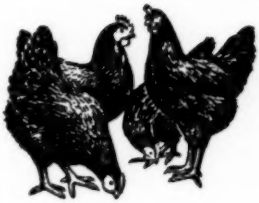
★ ★ ★

Country people are those who really want to know when they say "How are you?"

★ ★ ★

Some households could save on electricity by shoving aside blinds and curtains to let the blessed—and free—sunshine in.

Slat Floors For Hens



Slat floors may help you take care of more laying hens with less labor. Floor space isn't sacrificed to feeders . . .

Condensed from Nebraska Farmer

MANY people are asking questions these days about keeping laying hens on slat floors. What are the advantages and limitations of this system of management?

The recent popularity of keeping hens on raised floors comprised of wood slats or laths is based on two things. First, it offers an opportunity to more than double existing laying house capacity (where applicable) at a minimum of housing cost. Second, it represents a way of caring for an economical unit of poultry production with a very low labor requirement and a minimum of initial cost (per bird).

Actually, keeping hens on a slatted surface and in a restricted area or on a limited floor space is not new. The system has been popular in certain sections of the Orient for centuries.

A tightening economy in agriculture resulting in higher housing costs and decreasing bird margins is causing a rapid expansion of this system of management.

Construction

The exact dimensions of the individual slats will vary slightly with manufacturers as well as with their intended use. In all cases, the floor area is made up of parallel arranged slats or laths having from one-half to one inch open space between each. The amount of this opening depends on the age and species (chickens or turkeys) of birds to be kept on them. Many of the commercially available units of this flooring are made of wood laths similar in size and appearance to common plaster lath. These are usually Cypress or Redwood because of the increased resistance of these woods to moisture and acids. This type of lath is arranged on edge about ⅝ inch apart. Recently some companies have marketed floor sections made of ¾ x ¾ inch strips spaced ¾ of an inch apart. This latter unit appears more like the

Reprinted by permission from Nebraska Farmer, 1420 P Street, Lincoln 1, Nebraska

home built floors where ordinary 1-inch planed lumber has been ripped to make the slats.

Various leg and supporting structures have been used and as might be expected, thin metal and pressed steel rusted quite quickly. Heavier cast legs experience longer life, but are relatively expensive. Most poultrymen have used wood framing material (2 x 4 or 2 x 6) resting on ordinary concrete blocks to support the slatted sections which are usually fabricated in 3 x 4 or 4 x 4 ft. units. It is suggested that pressure treated wood be used for this in order to prolong life and keep floor from developing irregularities due to warping of supporting members. Standard 8 x 8 x 16 inch concrete blocks placed on end are 16 inches high.

T.G.E. (transmissible gastroenteritis) is most prevalent during the winter. Swine breeders should discourage visitors to their farrowing houses, provide means of disinfection for their own use between pens and houses and use strict sanitation measures.

This plus a 2 x 4 or 2 x 6 gives about the desired height as the droppings can be expected to accumulate at the rate of approximately 1¼ inches per month. This accumulation is based upon birds being housed at the rate of 1 to 1½ square feet per bird and points out the need to consider cleaning the house only once each year. This is a necessary consideration since this saving of time and effort (labor) is one of the basic justifications for the use of this system of management.

A dirt floor is preferable to concrete for use under slats. Although either can be used the dirt allows for some natural drainage and in so doing lessens moisture accumulation. For new construction a dirt floor lessens the cost and is recommended.

Space

The floor space allowed for each hen may vary slightly with each operator. Some poultrymen have gone as low as ¾ square foot per hen housed but the goal is more often set at 1 square foot per bird. It is considered advisable for the person who is using slats for the first time to allow approximately 1½ square feet per bird. This can then be reduced each subsequent year as the operator gains experience in slat floor management.

It must be kept in mind that this concentration of birds will require a similar concentration of feeders, waterers and nests.

Equipment

The type of feeders and waterers and nests used allows the

operator some personal preference in their choice. Two points which must be kept in mind when selecting this equipment are:

1. Birds are somewhat hesitant to jump up from or back onto the slatted surface.

2. Since the birds have no opportunities for scratching or dusting on this floor, any loose nesting material will be quickly siezed upon and scratched from the nests.

Therefore, it becomes necessary to use a roll-away type of nest and position them rather close to the floor when the birds are coming into production. The nests can be elevated gradually as the birds become accustomed to their use.

Most persons using slat-floors prefer the round hanging type of feeder. This unit allows a maximum of feeding space while occupying no floor space, requires filling only every 3 to 4 days, and can be easily moved to new locations to insure an even distribution of droppings.

Automatic waterers are essential in any commercial poultry operation, and any of the several low-leg trough types are satisfactory.

Many operators tend to be careless of overflow and leakage. Because of being on slats, this spillage is not readily visible. Careful management of waterers on slats will, however, pay off not only in an easier job of cleaning at the end of the year, but in less ammonia and foul odor throughout the operation.

The ventilation of a slat-floor unit is a very essential part of the overall consideration. Due to the extreme concentration of birds and their inability to move to a less crowded area, adequate air movement must be maintained at all times.

Adequate ventilation provides three important things in a poultry house: a. Air purity, b. Removal of undesirable odors, c. Removal of excess heat.

A satisfactory ventilation system should be able to provide at least 1 cubic foot of air per minute for each pound of chicken contained in the house. The effectiveness of any ventilating system is greatly enhanced by sufficient insulation correctly installed.

Poultrymen are urged to guard against feeding too much grain in proportion to the mash eaten by the laying flock. Poultry scientists say equal parts by weight of grain and a 20 per cent protein laying mash give close to the 15 or 16 per cent protein level recommended.

Lights are essential to any modern poultry operation. Either

incandescent or fluorescent types are satisfactory in the slat-floor house. The former has the advantage of lower initial cost while the latter is somewhat cheaper to operate.

Many of the newer slat-floor installations are without windows. This lowers the initial cost of the house, adds to its life expectancy and insulating value. However, for slat-floor operations, a house can be equipped with or without windows and either will be satisfactory when artificial light is properly supplied.

Large clean-out doors at either end of the slat-floor house are essential. They permit entry and use of mechanical clean-out and haul-away equipment. This is necessary if the full labor-saving potential of the slat-floor is to be realized.

Most Corn Growers to Get Higher Supports Under New Program

Higher supports for most corn growers both in the Corn Belt and Washington will result from the corn referendum, November 25. This surprising development was pointed out by Karl Hobson, Washington State Extension price specialist. Here's the situation as Hobson explains it:

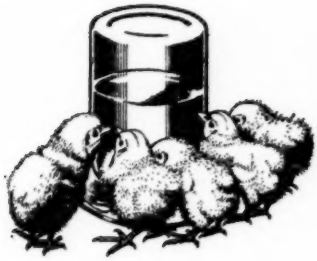
This year 88 per cent of the corn produced in the commercial area was supported at an average of $1.06 per bushel. That was the support rate for corn produced outside of compliance with acreage allotments.

Corn produced in compliance with allotments was supported at $1.36 a bushel, but only 12 per cent of the corn produced was eligible for this higher level of support. In other words, not many farmers planted within acreage allotments this year.

New formula for corn supports voted in November 25, is 90 per cent of the average market price in the past 3 years but not less than 65 per cent of parity. There will be no acreage allotments. Hobson says this indicates supports for all corn produced in the commercial corn area, largely in the midwest, will average $1.12 to $1.15 per bushel.

It will also mean some increase in corn acreage. It may not increase the pressure to feed corn to livestock because of the higher average support price. Many growers will probably take advantage of the loan rather than risk the uncertainties of a declining hog market. *—State College of Washington*

Brooding Chicks Successfully



A good start may mean the difference between a good pullet and a poor one. Here are the fundamentals . . .

Condensed from
American Poultry Journal

George France

BROODING baby chicks can be pleasant and enjoyable.

There is an element of contentment in watching a baby chick "peep" with gladness at the sight of some tasty feed and water, sleeping in groups in the warmth of the stove, and growing so rapidly that they are 10 times as big in six weeks as when they were hatched.

Doing certain things correctly before chicks arrive is as important as the care needed after they arrive from the hatchery. An environment such that the baby chick will grow rapidly and healthily must be provided.

Many types of buildings can be used successfully if they are of tight construction, made rat proof, and have provisions so that the amount of air entering the house can be controlled. The brooding house should be scrubbed with a disinfectant and allowed to dry thoroughly before litter is placed on the floor.

A number of commercial litters can be purchased from feed dealers such as peanut hulls, cane litter and peat moss, or ground or crushed corn cobbs or shavings are quite satisfactory. Straw will work if it is chopped and considerable quantity used to begin with. If additional long stem straw is added later in the brooding stage, it will slick over and mat.

The purpose of litter is to absorb the moisture from the droppings and provide a surface for air to pick up this moisture. This damp air is exchanged for fresh dryer air via windows or fans, and the brooder house is kept dry.

How To Use Brooding Equipment

The commercial litters should be at least one inch deep on the floor, and crushed cobbs or chopped straw should be 3 to 5 inches deep. The combination of 2 different litters will tend to pro-

Reprinted by permission from American Poultry Journal, 180 N. Wabash, Chicago 1, Illinois

duce a resilient, fluffy, desirable litter. Check the litter for any musty smell, as litter that carries mold spores can cause great damage to the lungs, stomach, gizzard, and intestines of the chick.

Heat should be started in the brooder two days before chicks are to arrive. This is necessary in order to get the brooders working correctly and adjusted to the right temperature. Also, the heat warms the floor, and thus chicks will be more comfortable when they are put from the chick boxes onto the litter. Cold floors can cause the chicks' toes to grow crooked.

Waterers should be filled and set close to the edge of the hover at least the day before chicks arrive. This will take the chill from the water. Remember that a baby chick has never had a drink before, and a drink of cold water could be a shock to him and might discourage him from wanting to take the second sip.

Provide one-1-gal. fount for each 100 chicks and set them on bricks buried partly in the litter. This raises the waterers so the chicks will not quickly scratch litter into the water and also provides a firm base for the waterer in order to prevent it from tipping.

Gas, oil, coal or wood burning brooder stoves can be used successfully. Electric heat bulbs can also be used. Desirable features of a brooder stove include ease of regulating the temperature, a hover that spreads the heat but also allows you to inspect the chicks under the stove with ease, and is economical and safe.

Every year, brooder houses burn because the brooder stove was not operating correctly. Correctly operated, nearly all brooders are safe and dependable. Different stoves will accommodate varied numbers of chicks; thus, it is well to check the stove capacity and not over crowd that number.

There may be nothing new under the sun, but there are a lot of old things we don't know.

If electric heat bulbs are used for breeding, some type of hover should be provided over the top of the bulbs. It should be at least 2 ft. wide and have side curtains that reach within 6 inches of the litter. Some of the new clear plastic hovers for electric heat bulbs work satisfactorily.

While heat bulbs warm the chick primarily by radiation (the absorption of heat rays by the chick), they also warm the chick by convection (warming the chick by the warm air that is heated by the bulbs). Thus, the need for a hover. Also, without a hover, the air that is warmed by the bulbs moves upward quickly and causes a rapid circulation

of air in the bulb vicinity, and a draft on the chicks can be created. Use one bulb for every 50 to 100 chicks.

To break up circulation drafts of cool air, place chick guards around the hover. A chick guard should be solid, at least 12 inches high, and formed in a circle 18 inches from the edge of the hover. They should be used in both summer and winter brooding because they keep chicks close to the feed and water for the first few days as well as near the heat. Remove guards when the chicks begin to jump over them.

Your hand can be an excellent draft thermometer. Hold your hand at right angles to the floor, touch the floor with the tips of your fingers and then spread the fingers apart. The small amount of moisture between the fingers makes the fingers very sensitive to any air movement.

BROODING REQUIREMENTS

	Brooding Temp.	Water Space	Feeder Space*	Floor Space
1st Week	95° F.	One 1-gal. fountain for 100 chicks	1 inch per bird	½ sq. ft. per chick
2nd Week	87° F.	One 1-gal. fountain for 100 chicks	2 inches per bird	½ sq. ft. per chick
3rd Week	80° F.	One 8-ft. automatic V-trough for 500 chicks or One automatic cup for 100 chicks or One 3-gal. fountain	3 inches per bird	1 sq. ft. per chick
4th Week	74° F.	Same	4 inches per bird	1 sq. ft. per chick
5th Week	70° F.	Same	5 inches per bird	1 sq. ft. per chick
6th Week	70° F.	Same	6 inches per bird	2 sq. ft. per chick

*Figure both sides of the feeder

Feed should be put out the day chicks arrive. Putting feed out a few days ahead will allow it to dry and lose its freshness. Put the feed in 2 egg case cup fillers and two 3-ft. chick size feeders for each 100 chicks and use a

good chick starter feed. By this is meant a feed that is nutritionally balanced, preferably crumbled, that contains a preventative for the disease of coccidiosis.

When using a commercially packaged chick starter, it is not now necessary to feed chick grains the first day; 2 lbs. of feed will last about 4½ weeks or longer if some whole oats is fed beginning the third week. When feeding whole grain, always feed grit.

Control of insects, ticks and mites affecting poultry can save U. S. producers as much as $100 million a year.

Watch the Temperature

Place chicks under the hover as soon as they arrive. The temperature at the inside edge of the hover should be about 95° F. the first week, and the room temperature should be about 70° F. A few hours before the chick is hatched, it draws the egg yolk inside its body cavity. This yolk is normally absorbed within a few days.

However, if a chick gets too hot, something happens to the blood vessels leading to the yolk, and the chick is unable to absorb the yolk. The adverse effects of this cause pasting of the droppings at the chick's vent.

If the chick has been too hot, it can also be detected by examining the inside of the chick's wings. Each day the chick gets too hot, a water mark will appear across the rapidly growing primary feathers. This is caused by the failure of the chick to metabilize its feed properly and no little feather hooklets are produced that day on the feather. Remember, if it is too hot for you in the house, it is too hot for the chick.

Waterers should be cleaned each day.

"How much air should I give my chicks?", is a question often asked. If the air smells stuffy to the caretaker, then let some air into the house. Placing burlap sacks over the window openings helps break up the fast flow of air into the house. Sacks will cut out part of the light entering the house, and electric lights should be used if the house is too dark. A small bulb should be burned at night, at least for the first week to prevent chicks from crowding.

In 1906, the 31 herds in the original cow-testing association produced an average of 5300 pounds of milk and 215 pounds of butterfat; in 1957, the 39,985 herds with Dairy Herd Improvement Association standard records averaged 9894 pounds of milk and 389 pounds of butterfat.

More Money from Your Orchard

Regardless of the size of your orchard, do everything possible to raise high quality fruit . . .

Condensed from Eastern Fruit Grower

Howard A. Rollins, Jr.,
Virginia Polytechnic Institute

THE apple industry has a long history of ups and downs—years when profits were high and years when there were no profits. However, in addition to these characteristic ups and downs there has also been a general decline in profits. This is due to the fact that production costs have increased at a more rapid rate than have the prices received by the growers for their apples. Declining profits have forced the abandonment of the less profitable orchards and, if profits continue to decline, still more growers will find that the non-profitable years will occur more and more frequently.

What can be done? There are two obvious ways to increase profits. One is to cut production costs and the other is to increase the price received for the product. The grower should plan to work on both. Through increased advertising and improved marketing practices, a greater demand for apples can be created. Likewise, through improved orchard efficiency production costs can be cut and fruit quality improved. It sounds easy, doesn't it? Time will not allow me to delve into all of the various aspects of the problem, but I would like to discuss with you further this matter of orchard efficiency.

An apple orchard does not have to be large to be efficient. In fact, the grower with 20 to 40 acres has one very definite advantage over the larger grower in that he has the opportunity of closer supervision over his entire operation. Increasing orchard efficiency should not be considered only in terms of reducing overall costs but rather in terms of increasing per bushel profits. For example, if by spending a few dollars more you can increase production and reduce per bushel costs, then you have increased your orchard efficiency. The most effective way of reducing per bushel production costs

Reprinted by permission from Eastern Fruit Grower, Boyce, Virginia

is to increase yields.

Spraying

Spray materials represent one of the orchardists' largest out-of-pocket expenditures, in most it is second only to labor. For this reason, in any efficient orchard operation considerable emphasis should be placed on the selection and execution of a spray program.

In the selection of a spray program, first consider the effectiveness of the materials in controlling those insects and diseases that are a problem in your orchard. This is the basic function of any program. There are a number of materials from which to choose that will satisfy this requirement. Next consider the harmful effects of the materials upon the tree itself and more specifically upon the leaves. All food materials for the life of the tree are produced within the leaves. Without good, healthy foliage, maximum yields of high quality fruit cannot be expected. Whenever leaves are damaged, even slightly, a reduction in yields will follow. Also consider the influence of various materials on fruit finish. This is especially important if fruit is to be sold on the fresh fruit market.

Finally, after the above points have been evaluated, consider the cost of the various materials and programs. Why did I mention cost last? I did this because the cost of the material itself as such is relatively unimportant. In considering spray costs, calculate them on a per bushel basis. Keep in mind that, if by spending a little more money on spray materials you can improve fruit quality and increase yields, then the best spray program available, yet not necessarily the most expensive, is often the most profitable. In the efficient operation of an orchard, a mild yet effective spray program is a must.

Fertilization

Another important phase in the efficient operation of an orchard is the fertilization program. A crude rule of thumb

Researchers for USDA are working on a tree-shaking machine to speed up fruit harvesting.

that is used by many Virginia growers is to apply one-fourth pound of a 20% nitrogen carrier, or equivalent in some other form, per year of age of the tree. According to this rule then, a tree 20-years of age would receive about one pound of a c t u a l nitrogen. However, in the final analysis, as far as the nitrogen fertilization requirement is concerned, let the tree itself serve as the guide. If growth is poor and leaves are on the yellow side and if the fruit is small but well colored, in all likelihood these

trees will benefit from additional nitrogen fertilization. On the other hand if the growth is excessive and the leaves a lush, dark green and if the fruit size is good but poor in color, then these trees may benefit from a reduced amount of nitrogen fertilizer. Examine your trees and let them tell you what they need.

Mouse Control

When a mouse-injured tree weakens and dies, the loss is immediately evident and can be to some degree evaluated. However, the dead trees represent only a part of the total damage. Other trees may have been less severely injured but yet enough to reduce their fruit yields. Keep in mind that whenever the production of an orchard drops due either to missing trees or crippled trees, the per bushel cost of production in that orchard increases. Through causing an increase in the per bushel cost of production, mice can rapidly convert a profitable orchard into a profitless operation.

Broilers today can make a pound of gain on less than three pounds of feed, compared with more than four pounds of feed necessary 20 years ago.

Fruit growers have been unable to obtain satisfactory control of orchard mice through the use of baiting methods. Because of this, about ten years ago Dr. Frank Horsfall, Jr., started a research program for the purpose of finding a more efficient and effective method of controlling orchard lice. As a result of his research, Dr. Horsfall developed a method of control which consists essentially of contaminating the surface trail systems of the mice with a toxic material. This is accomplished by spraying the cover beneath the trees with an endrin spray. Mice travelling through the contaminated trail pick up the poison and are killed. We have found this method of controlling mice extremely effective. Now growers are able to completely eliminate mice from their orchards.

The use of endrin ground sprays as a means of controlling orchard mice is expensive. It costs most growers from $10 to $12 per acre for materials. In spite of the high cost, orchardists are very enthusiastic about this method and feel that the superior control justifies the additional cost. There is every indication that through more adequate mouse control, orchards may be maintained at a higher level of productivity, thus keeping the per bushel cost of production at a minimum.

Pruning

Apple trees require at least some pruning every year if they

are to produce maximum crops of high quality fruit. Pruning is a very expensive operation and requires considerable labor. However, with the development of pneumatic power pruners and pruning platforms, the amount of labor may be reduced. Growers are finding that, to gain maximum efficiency from the use of power pruners, they should be used with pruning platforms.

In addition to the labor-saving features of power pruners and pruning platforms, the use of such equipment also results in better pruning practices. When working from a platform, a man prunes from the outside in. He has a better perspective of the entire tree and sees it from the direction that sunlight and sprays will approach. In this way he is able to do a more effective job of opening the tree up.

The removal of brush after pruning has always been an expensive and labor-consuming job. Many growers now use rotary brush choppers to dispose of the brush. One orchardist reported that he is now able to cut up 50 acres of pruning brush in less than one day.

Harvesting

Within the last few years there have been significant strides made in the mechanization of harvest operations. Some of the larger growers are palletizing their entire harvest operations. In some sections of the country large bin-type boxes are now coming into use. Much of this mechanization requires expensive equipment and would be impractical in some of the smaller orchards. However, harvest efficiency can be improved regardless of orchard size.

A very important place where nearly all growers can improve is in connection with the bruising of fruit from the tree to the consumer. It does very little good to produce high quality fruit only to have it badly bruised by the time it reaches the consumer. Every time an apple is bruised its value decreases and with it your profits. Check pickers frequently and make sure they handle the fruit carefully. Then study your methods of transporting fruit. Much of the fruit is bruised here. Also check over grading equipment and particularly the dumper. By reducing bruising you can help maintain the quality of your fruit and increase your profits.

The "Nickels for Know-How" program has brought in almost one million dollars for agricultural research since it was started in 1952.

The efficient production of fruit is not limited to large orchards. A man with but 20 to 40 acres may also improve his

profits if he will make every effort to keep his trees in the best possible condition for the production of maximum crops of high quality fruit. Then, once the fruit is produced, do everything possible to maintain that fruit in a high quality condition.

You'll Like Deep Poultry Litter

A deep, built-up litter can save poultrymen both labor and expense, according to Purdue University poultry specialist, Joe W. Sicer.

What are the advantages of a deep, built-up litter? There are several, Sicer says. It saves labor, reduces damp litter problems, provides better insulation against cold or damp floors, and prevents disturbing the hens and chilling the house floor during cleaning. And, many pathologists claim that deep litter helps control certain diseases.

Start a deep litter in early fall. Thoroughly clean and disinfect the laying house, put in a covering of litter three to four inches deep and add fresh litter as needed. The litter should be at least six inches deep by the first of December. Shavings or crushed corn cobs seem to work best for deep litter, Sicer reports. A mixture of shavings or ground cobs with straw is better than straw alone. Leaves, hay, alfalfa or clover stems, soybean straw and shredded corn fodder are not recommended.

Be sure that the house has adequate ventilation. When forced ventilation is not used, the rear and end walls should be tight and the front of the house should be kept open until water begins to freeze inside. Sicer believes that the house should never be completely closed, even in severe weather.

Many laying houses are overcrowded, according to the Purdue specialist. He recommends that each hen be allotted at least three to four square feet of floor space. If water is spilled, blown, or tracked in, the wet litter should be removed and new litter added if necessary. Unless severe disease epidemics occur, the litter can remain in the house until spring.

Additional information on deep, built-up litters can be obtained from county extension agents or by writing the poultry science department, Purdue University, for Mimeo P-56, "Deep, Built-Up Litter for Laying Houses." —*Farm News*

You Should Take a Farm Inventory

You need a yearly tally of your property. It's a quick way to chart your financial progress . . .

Condensed from
. Nation's Agriculture

Dan L. Henley,
Doane Agricultural Service

AN accurate farm inventory is the starting point for good farm management. Whether you keep complete farm records or not, you need a yearly tally of your property.

It's a quick, accurate way of charting your financial progress. By combining your assets, cash on hand and liabilities, you can determine your net worth and compare the figure with what you owned and owed a year ago.

A complete inventory is required by the government for income tax purposes if you are filing on the accrual basis. On the cash basis you aren't required to keep inventories, though some type of record of capital assets is necessary to work out depreciation schedules.

Your banker will require that you furnish him a property list before he takes a mortgage, and he might feel that he could safely make larger loans on an up-to-date, accurate inventory than on a rough estimate of your property's value.

If you are in the position where you can rent out your farm and retire, or if you are about to go into partnership with a son or neighbor, then an inventory can be used for accurate division of profits. Too, it constitutes acceptable evidence to the Social Security office that you, as landlord, are furnishing the necessary share of equipment and livestock to qualify for benefits.

After fire or windstorm has caused its damage, many farmers find they don't have enough insurance to cover losses. Usually this happens because they underestimate the value of their buildings, equipment and stored feed. Take an inventory and you may

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find that you need additional fire, windstorm and theft insurance, too.

The personal property tax assessor will be pleased to find you have an inventory already made up. Taxes will be uniform from year to year, even with different assessors, if they all work from your inventory.

Finally, an inventory may be as good as a small life insurance policy to your survivors if it comes to dividing up your estate. The time and expense saved by their knowing the amounts and values of your property would be worth a lot.

Making an inventory of the average farm shouldn't take more than a half day if two people work on it together. It will take even less time after the first year. Don't be discouraged and call the whole thing off when you get to one of your most difficult items to measure. A good guess is better than no guess at all. But before you start, figure out the best time to take an inventory, then stick to it each year.

Inventorying will have to be done when you have the time. That's the first factor to consider. Also your job will be easier if it is done when stocks of grain and livestock are lowest and the amount of growing crops is at a minimum. Inventorying should be timed along with income tax returns.

You can't hit all of these factors just right so at best try to compromise. You'll probably come out with a best date of January 1 or thereabouts.

With two people taking the inventory one can describe each item and the other can write it down. Start out with scratch paper and list all items as you come to them. Later you can sort them out and list in neat form.

Go from one building to the next. List machinery by type and brand, measure buildings for total volume of grain and loose hay. Level off the top of grain in bins before measuring depth. List all breeding stock with a description or ear tag number for easy identification in future records.

Time out for testing and record keeping does not seriously interfere with milk production, Purdue University dairymen point out. California tests to compare the amount of milk shipped four days before and after the testing day showed insignificant variations.

Taking an inventory is only half the job. When you finish counting, then it's necessary to value the items. Farmers who are reporting income taxes on the accrual basis must follow one of the methods the government ap-

proves for setting a value on inventories. These are —

1. Cost.
2. Cost or market value, whichever is lower.
3. Farm price.
4. Unit livestock price.

Of these methods, the farm price is probably simplest and most popular. This method will

HOW TO TAKE AN INVENTORY

Suggested method for the farmer who reports income tax on cash basis

Item	Method of Setting Value	Discussion
Feeds and Grain Purchased	Purchase Cost	Use a normal value if feed was purchased at a discount or during a period of extremely high costs.
Feeds and Grain Home-grown	Farm Price or Market Price	Either method is suitable so long as one is used consistently. Deduct marketing costs from farm price.
Silage	Same as For Hay	1/3 the value of good hay.
Growing Crops	Production Cost	Cost up to date of inventory only. Eliminates risk of inventory being out of date after harvest if yields aren't as expected.
Livestock	Farm price or Normal Market Price	If farm price is out of line, use a normal price. Breeding stock may be figured on a depreciation schedule.
Machinery and Equipment	Original Cost Minus Depreciation	Using straight-line depreciation method, decide probable life of each piece of equipment and write off a fraction of value each year. If machine lasts longer than expected, continue to list it at no value.
Major Farm Buildings	Usefulness & Condition Compared to Replacement	Should remain unchanged so long as they contribute uniformly to the farm's real estate value.
Smaller Farm Buildings	Original Cost Minus Depreciation	Buildings deteriorate and become outdated despite repairs. Figure 2-3% depreciation per year.
Real Estate	Reasonable and Sales Value	Price should not be changed except when changes in productivity or buildings alter value.

also work well for those who are on a cash basis.

In figuring the farm price of a specific commodity, you should deduct the costs of marketing—transportation, commission, yardage, brokerage, etc.

If you report income taxes on a cash basis you can use any system you desire for valuation purposes but whatever system you adopt, plan to stick to it from year to year. Otherwise you won't be able to make accurate annual comparisons.

Once you have all the values fixed, list them in a permanent record book and make final totals. A detailed breakdown of values, such as total home-grown feed, cash grain and processed feed, or haying equipment, tillage equipment and seeders, will be much more valuable to you in planning future operations than a few lump sums. From this breakdown you will be better able to tell where most changes occur, and can see where you have the most capital tied up.

"Most of the shadows of this life are caused by standing in our own sunshine."
—Ralph Waldo Emerson

To get net worth, add to the total inventory all cash, savings, stocks and accounts receivable from others. Also include the value of all other property you own. Then deduct your debts.

Gauge loan sizes by the inventory. As investment and annual expansion in a particular farming program increase, you may want to get larger loans for operation of that program.

Most important of all, since the inventory is the start of good farming, use it in every way possible to help with your farm work. Use it when writing rental agreements, whether you are the landlord or the renter. As a prospective tenant, an accurate inventory of your property will be interesting to a farm owner and may help to impress him of your capabilities and farming knowledge. It may also help you in working out a satisfactory agreement on furnishing livestock, feed and equipment on the shares.

When you are making plans for the coming year, a glance at an accurate inventory may be very informative. For example, it could be of help if you are wondering whether it will be more profitable to feed cattle, or to sell them and the feed. It will show you the amounts of feed available and the comparative sales values of cattle and feeds.

If you don't already keep complete farm records, then an inventory is a good way to start. Once you have it, other records will be easier to organize. The

values can be used in crop performance records, breeding stock performance records and accurate cash account records.

Don't sell the inventory short. Even if you know the values of everything you own, a few discrepancies here and there when added together can make a big difference. You may get a totally different picture of your farm by looking at all your property listed together with accurate values. An inventory can be useful to you in a number of ways. Use it and it will be well worth the time you take once a year in bringing it up to date.

Farming is Big Business

A report issued by the U. S. Department of Agriculture calls attention to the importance of the American farmer as an industrial market. Agriculture buys more petroleum than any other industry. Farmers take 6,500,000 tons of steel and enough raw rubber to put tires on nearly 6,000,000 cars a year. Sixteen per cent of the gross freight revenue is from agricultural products, and farm products make up about 20 per cent of the U. S. exports. Agriculture uses 50,000,000 tons of chemicals annually, and more electric power than is used by Chicago, Detroit, Houston, Baltimore and Boston combined. In 1957, agriculture was a 14 billion dollar customer for industry.

—Louisiana State University

The Big Things

The Committee on Economic Development recently released the results of an essay contest conducted among business, political, scientific, educational and cultural leaders in all parts of the country. Among those outstanding citizens the predominant thought on the needs of America during the next several decades is one of concern over our nation's sense of values, its goals and its direction.

Twenty of the leaders felt that the deterioration of these qualities presented the most serious long range problem, compared to only eight who felt that inflation presented the most serious challenge. Foreign relations and trade, combatting the recession, and similar matters ranked well below as causes for major concern. The fact that this appraisal represented the collective judgment of people highly respected in all walks of life is enough to make anyone stop and think where we have been, where we are at this time, and where we are going.

How to Systematize Livestock Feeding

Before you buy equipment, do a lot of planning . . .

Condensed from
Electricity On The Farm

Everett H. Davis and *D. W. Works*,
University of Idaho

Mechanized materials handling is probably the biggest thing to hit farming since the tractor. Its success is based upon two things: (1) electric power for versatility and (2) grouping of equipment into a "system" for top efficiency.

Any farmer can install an electric motor-driven auger or silo unloader. But just the installation of these labor-saving devices doesn't mean they are doing the best job they were built to do, or that you are paying for.

If you put an investment into mechanical feed handling equipment, you owe it to yourself to plan it into a system beforehand. It will really pay off.

What is a system? Take cattle feeding as an example. If a farmer were to install electric equipment without planning a system, he would buy a silo unloader—then figure out how to get the silage from the bottom of the silo to the cattle. He would buy a feed mill — then try and fit grain-handling augers around it. This could run him into a lot of trouble. If the individual machines wouldn't mesh exactly with one another, he would have to go to costly and time-consuming alteration.

Now let's look at the farmer who plans his feeding operation ahead of time—one who develops a system.

Hay handling uses a baled-hay elevator to lift the bales into one end of the storage loft. The bales take a short drop onto a horizontal endless belt conveyor which runs the length of the loft. Bales are picked off the moving belt and stacked on either side. (See illustration).

The conveyor is reversible so it can also be used to remove bales from the mow. Bales are moved to the gravity slide which guides them down to the bunk feeder. A movable side-track device on the conveyor deflects the bales off the belt to the gravity slide for their downward trip.

Silage feeding fits right into the system. A silo unloader

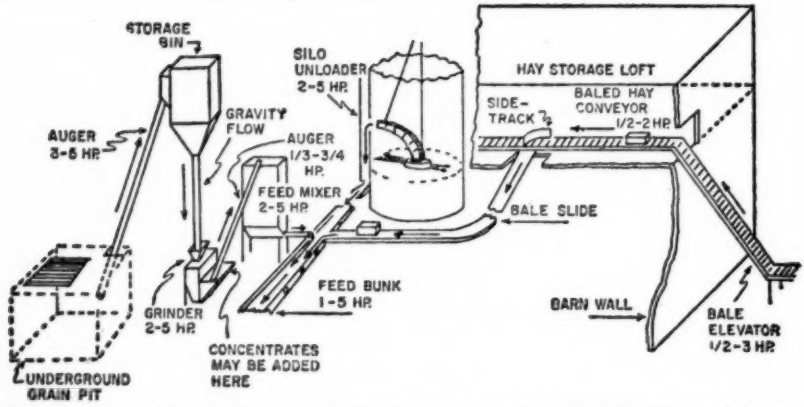
Reprinted by permission from Electricity On The Farm, 305 E. 45th St., New York 17

quickly throws the silage out, even in freezing weather. Blown down from the silo, the silage flows right into the bunk feeder.

Lots of money can be saved if home-grown grain is used to feed the cattle, and this operation fits right into the system too. The whole grain is unloaded into an underground grain pit. There an auger takes over, carrying the grain to overhead storage bins. Gravity moves the grain from the bins to the automatic feed grinder, where the flow of grain itself starts and stops the motor. Concentrates are added here.

Feed and concentrate combination is augered to the mixer, mixed, and metered into the same bunk feeder as the silage and hay. The feeder can be either auger or flight conveyor. The auger does a more thorough job of mixing feed and silage. If dry hay is used, the flight conveyor is better.

The only heavy labor involved in the entire system is taking the hay bales off the conveyor for storage. The rest is done by pushing buttons to start and stop the motors. Doesn't this sound better than the haphazard collection of power equipment that occurs when no system is planned? Agricultural engineers, who are experts in the field, say that the systems being developed will soon give the farmer as much leisure time as the city dweller.



A planned system brings all material to a central distribution point—the feed bunk in this case. This eliminates unnecessary labor and/or time. Augers and conveyors make it possible to tie present buildings or feed lots into an efficient feed handling system with a minimum of remodeling of present farm buildings.

Is the Cost Justified?

Don't go out and buy equipment you don't need. But short-

age of farm labor is becoming an increasing problem, and sometimes the cost of equipment can be justified by labor costs alone. Better quality farm products, more efficiency of the farm operation and reasons of personal health should all figure in. You also might consider the drudgery of the old method, and the leisure time the new system will afford.

Which type of system will fit best into your operation? Consider the type of livestock you raise, types and quantities of feed you have to handle, present and future feeding methods, present buildings, equipment, farmstead wiring, and plans for expansion, before you buy.

The system does not have to be put in all at once—that would probably be an expensive deal. But if you have a definite plan figured out in advance, you can put it into effect step by step.

You'll have plenty of help in planning, if you seek it. Among the people qualified and willing are county agricultural agents, electric power supplier representatives, and your neighbors who have put in their systems.

Fresh Air Helps Keep Laying Flock Healthy

A poultryman is likely to have more problems during winter months by keeping the laying house closed too tight than by letting in lots of fresh air, says Walter Russell, University of Missouri extension poultryman.

It's best to leave the south front of a laying house open except during extremely low temperatures or when rain or snow is blowing in the house. Even then, windows or panels should be tilted to allow fresh air to enter the building.

Closing the buildings too tight usually results in damp litter, ammonia fumes, and more trouble with respiratory diseases. Many poultrymen, facing these problems, often depend upon expensive medications to maintain production.

Laying hens can withstand colder temperatures than most people think, Russell points out. Satisfactory production can be maintained as long as birds get fresh feed and water and the built-up litter is kept loose and dry. —*Missouri Farm News*

Scientists at the Lower Saxon Bee Institute in West Germany have produced a bee gentle enough to be held in the hand and petted. What's more, the stingless marvel produces just as much or more honey than his well-armed cousins.

Pros and Cons of Roostless Houses

Chickens have perched on a roost ever since trees were created. But poultrymen now build poultry houses without roosts . . .

Condensed from Hoard's Dairyman

Joe W. Sicer

THE question of perches or no perches is not just a matter of making the hens happy. It is a question which involves some basic problems that can definitely affect your net returns.

If you are concerned about the matter—and a surprisingly large number of people seem to be—there are a number of factors which you should consider:

1. The kind of chickens you keep.
2. How lack of roosts will affect your management practices.
3. The seasons of the year during which you use the house for layers.
4. The construction of your house and equipment.

Leghorns Like to Roost . . .

In general, Leghorn-type chickens want to roost. If you don't give them perches, they will roost on the feeders, nests, or any ledge where they can get a foothold. Forced to stay on the floor, they often are inclined to to pile and climb on top of one another. Because of this natural preference, it is usually wise to give them perches unless the birds are on slatted or wire floors.

Some heavy breeds, on the other hand, especially broiler-type birds, are too lazy or too heavy to want to make the effort to jump up on a roost. Training them to roost is often a time-consuming and disheartening job. You think, "What's the use? They would rather stay on the floor anyway!"

But without roosts, other problems arise.

Wet Litter Big Problem . . .

With no roosting racks (or dropping pits as some call them) all of the droppings go into the litter. The job of keeping the litter dry is increased. The litter often becomes packed and caked unless you have excellent ventilation conditions.

Wet litter calls for stirring, the use of lime or superphosphate, and the addition of fresh litter. This means time and money that probably could be saved if roosting racks were used.

Reprinted by permission from Hoard's Dairyman, Fort Atkinson, Wis.

In addition, wet litter means more eggs. Also, there seems to be a tendency for more floor eggs when the birds roost on the floor.

Treating for lice is complicated when the birds do not take to the perches. It is no longer simply a matter of painting the perches with lindane to rid the flock of lice. Instead, it is necessary to use a dust, such as malathion, in the litter and treat the entire floor.

Should the house become infected with red mites when the birds are on the floor, you would have quite a problem on your hands because the mites probably will be all over the house. With perches, mites are no problem if you paint the perches and their supports once a year with anthracene oil.

During the first eight months of 1958, a total of 167,905,000 pounds of poultry was used in canning and other processed foods in the U.S. This compares with 140,872,000 pounds used during the same period of 1957, an increase of 19%.

The idea of doing away with roosts began a number of years ago with those heavy breed owners who started chicks very early in the year. These pullets would come into production during the summer when litter condition is not a problem. They would be "laid out" by December and would make room for another early brood of chicks. Wet litter had not had time to become serious.

Today, breeding and more knowledge of feeding and management has made it possible to get profitable production from meat-type birds over a longer period. This means that these birds are in the house during seasons when wet litter can be a real problem.

If your house is poorly insulated and ventilation has always been a worry, your troubles probably will be increased with the birds roosting on the floor. Birds grouped tightly together on the floor do not have the air circulation around them that is possible with birds up on roosts. They are closer to ammonia fumes, which may become a stress on the layers.

Even with heavy breeds, there usually are some birds in the flock that will want to settle down on a perch somewhere. They can be a nuisance on feeders, waterers, or nests and may necessitate some costly changes or modifications of equipment to keep them off.

Actually, even some of the most ardent advocates of floor roosting want to have enough low perches to handle about one-fourth to one-third of the flock.

These perches satisfy those birds that want to roost high but, more important, they serve as an "escape" for the timid birds, affording them a place where they can rest without constant threat of being pecked.

Some Advantages . . .

Floor roosting does have some advantages, however.

There is the saving of the cost of building roosting racks, if you are putting up a new house. There also is a saving in the cost of keeping existing roosts in repair.

You eliminate the time-consuming job of scraping and scrubbing the roosts and racks during the annual house cleanup.

The rats, which sometimes become quite bothersome in the accumulated droppings under roosting racks, are at least forced to change their habits.

You no longer have the often exasperating job of training pullets to take to the perches. Why is it that pullets may roost like veterans in the range houses, but seem to lose all of that instinct when moved to the laying house?

Of course, with a roostless house you avoid that problem, but, to make it work you must have excellent ventilation.

USDA Research Indicates Earlier Ewe Selection is Possible

Weight of ewes as yearlings just before first breeding is a fairly accurate indication of the birth and weaning weights of the lambs they will produce, according to a U. S. Department of Agriculture study.

Heavier ewes, regardless of breed or wool type, produced heavier, faster-growing lambs than lightweight ewes in USDA trials. This finding makes possible quicker profits for owners of breeding flocks by the earlier culling of animals not likely to improve lamb output. Flock owners tend to cull their ewes after each animal has produced a lamb.

Weaning weights used in the study were obtained from 446 lambs born when their dams were two years old. The lightest group of ewes averaged 65.4 pounds as yearlings and the heaviest group 92.7 pounds. This 27.3-pound advantage in body weight for the heavier ewes resulted in lambs averaging 1.29 pounds heavier at birth and about 10.5 pounds heavier at weaning.

—New Mexico News

What's Ahead For Poultry?

An expert's view of things to come for poultrymen.

Condensed from
The National Future Farmer

Tommy Kieth

POULTRY breeders are on the move in America. Considerable improvement has been made in the performance of layers, broilers, and turkeys during the past 10 years and further breeding improvements are in store.

A larger number of layer breeders will be franchising smaller-bodied birds, says W. F. Krueger, Department of Poultry Science, Texas A&M College. Most of the egg production birds will weigh three and three-fourths to four pounds when mature. Such will lay good-sized eggs, but will have less feed maintenance cost than the large-bodied bird with which we're familiar today.

Krueger predicts the layer of tomorrow will continue to be a hybrid of some type. More favorable characteristics can be concentrated in one bird through hybrid production. Greater uniformity of egg size will be emphasized. There should be less small and extra large eggs and a higher percentage of medium and large-size eggs, giving the producer a marketing advantage.

Selection Objectives

Breeders will be selecting for longer livability and sustained production in the future. The high cost of pullet production and the low salvage value at the end of the laying year make this a must. Average egg production will continue to climb and work will be done on the preservation of egg quality through breeding.

"Breeders of commercial broiler chicks have somewhat different objectives," says Krueger. They must emphasize meat production as well as egg production. Breeders of broiler strains will continue to select heavily for improved growth rate and Krueger thinks we can look forward to three-pound average weight in six to seven-week-old broilers.

Greater emphasis will be placed on breast width, length of keel, skin color, fleshing color, and general conformation. These things constitute market quality in the eyes of the consumer and are becoming increasingly impor-

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tant to the producer.

Very detailed studies are being made on color patterns, blood composition, muscle tenderness, and other similar factors to check their influence on growth and performance.

Broiler parent stock for hatching egg production will change materially. Higher and more sustained production can be expected. Breeders are accomplishing this by producing female parent stocks that are crosses.

Males to head up breeder flocks will continue to contain a high percentage of Cornish breeding with continued emphasis on growth rate and conformation. Flock owners should see improvement in fertility and hatchability in broiler parent flocks, because most broiler breeders are now placing considerable emphasis on these traits.

Turkey Trends

Turkey breeders are changing their approach because of the appearance of the turkey broiler and the need for greater efficiency of production, Krueger says. A number of breeders are now practicing early selection—8 to 12 weeks of age—for growth rate, conformation, finish, and completeness of feathering. This is being done to improve the quality of turkey broilers, thus making them more competitive with red meats and chicken broilers.

Early maturity, or market finish, is being emphasized in the adult turkey. Breeders are selecting birds so that toms will reach market age at 20 to 24 weeks. Turkey producers will have more white birds available, predicts Krueger. They will be available in small, medium, and large sizes. Attempts will be made to improve fertility and hatchability in turkey breeder flocks.

People buying chicks will hear more about such breeding systems as recurrent reciprocal selection, recurrent selection, and incross-breeding, all of which capitalize on the principles of hybrid vigor. Likewise, we will be hearing more about such terms as heritability of traits, the genetic association among traits, environmental characteristics, and selection indexes.

Patience is fine, but it never helped a rooster lay an egg.

In addition to this will be the use of such biochemical techniques as the control of the blood antigens, use of protein-bound iodine, thyroxine secretion rate, and other biochemical and physiological mechanisms which may be related to performance.

Poultry breeding is truly a science and with all the scientific tools presently at breeders' disposal and with new tools becoming available each year, we can expect considerable progress in poultry breeding.

How To Use Market News

Use your radio and TV to make more money . . .

Condensed from Iowa Farm Science

Gene A. Futrell

DECIDING when and where to sell your livestock and crops are vital parts of your farm business. Careful marketing can increase returns. Careless or haphazard marketing, on the other hand, may offset any gain you've already achieved through efficient production and management.

Most marketing decisions are made under conditions of uncertainty regarding expected prices. There is, however, a great deal of market information available. Used wisely it can make money for you.

Market information includes more than just current information on supplies, prices and market conditions. It includes background and outlook information as well. You'll find that you can make most effective use of current day-to-day market information when you couple it to (1) an understanding of normal seasonal patterns and (2) a knowledge of current background and outlook material.

Marketing: Two Parts

On-farm marketing decisions are of two types. One includes year-to-year production plans. These might be thought of as preliminary marketing decisions. For example, you establish the approximate time of your hog marketings when you choose the time your brood sows will be bred. Background information, outlook and an understanding of seasonal patterns can be most helpful in making this type of decision.

The more generally recognized marketing decision is that of deciding when and where to sell what you've already produced. Current market information, supplemented by outlook and background material, can help you make the most effective decisions here, too. Choice of the best market calls for careful consideration of current supply, demand and

Reprinted from Iowa Farm Science, Iowa State College, Ames, Iowa

price conditions at the markets available.

We'll take a closer look at the problem of deciding when and where to sell. But, first, let's see how most of the market information is collected and how it's made available.

How Gathered . . .

Most farm market information is collected by the Market News Service of the United States Department of Agriculture — often through cooperative federal-state arrangements. The Market News Service had its beginnings in 1915 when reports were first released on strawberry prices at Hammond, La. Since then, collection and distribution of market information has grown to include practically every farm product. Reports on prices, market conditions and supplies are now released several times each day.

Assembly of livestock information began in 1918 when reports were released from Chicago. At present, market reporters are located at nearly all of the large public livestock markets in the country. Additional information is collected on direct livestock sales in several market areas.

The USDA also assembles market information on poultry and eggs at primary markets and in some of the main producing areas. Private reporting agencies and in some instances, members of the trade itself, also collect and release produce reports.

Current information on grain markets—both cash and future—is released by the USDA and by the grain trade. Branches of the Market News Service also assemble and report information on dairy products, fruits, vegetables, cotton and tobacco.

Information collected by the USDA is transmitted directly by teletype to all parts of the country. It is released also to press and radio wire services. These are the main links in getting the information to radio stations and newspapers for their use. Grain, produce and stock market reports are also transmitted direct from the exchanges by commercial ticker service.

The Sun has a diameter of 865,000 miles and is 1-1/3 million times the bulk of the earth.

How to Use . . .

Here are some of the kinds of information collected and how it can be used.

Livestock: Estimates of the salable supply of each class of livestock at terminal markets are released early each morning. Estimates of direct hog and sheep marketings are released about mid-morning. And advance estimates of the following day's supplies are available for several of the larger terminal markets. These daily market supplies are

one of the first factors to consider in deciding when and where to sell.

In using these supply figures, see how the current supply compares with that on the corresponding day of a week or a year earlier. Compare supplies both at individual markets and in total. Where possible, try to picture the week's accumulation of marketings; this gives some indication of prospective slaughter needs. Packers prefer to have their facilities busy but not overcrowded.

Though the exact effect of supply changes on prices can't be estimated precisely, a knowledge of relative supplies is still helpful. For example, substantially larger supplies—compared with the corresponding day of recent weeks—can be expected to press down on prices. Relatively small supplies, on the other hand, would indicate a higher price trend. Interpretation of supply estimates, however, should also take current demand conditions into account. Short-run changes in demand—because of holidays, weather and other factors—also will affect prices.

A clear conscience is often the result of a bad memory.

Price information on livestock is collected at all major public markets. Prices are quoted on hogs, cattle and sheep, usually by specific weights and grades. This makes it possible to compare prices between markets and to estimate what your livestock is likely to sell for. Hog prices are probably reported for most of the packing plants located in your area. This includes specific prices by grades at most of the plants, plus a general range of prices.

A daily report on lamb prices is also available.

Knowledge of supply and price conditions at alternative markets strengthens your bargaining position with buyers. Many livestock producers don't consider these factors at all—merely selling to the same buyer as regularly as livestock are ready. This is the simplest system and requires the least effort. But it's unlikely to consistently yield the greatest returns.

Choosing the best market as price relationships change offers the best bet for gaining highest returns consistently. To do this, watch the price trends at different markets. Compare especially the prices at your usual outlet with those at alternative markets. See what the price differentials are between markets; then consider transportation and handling charges for reaching the different markets. Find where your net returns will be greatest. Keep a close watch on supplies, and then make your decision.

Eggs: Price information on eggs is available daily for major markets such as Chicago and New York. Besides prices, these reports also indicate supply and demand conditions and other information relative to the general market situation. Local prices are published in most daily newspapers.

Using this information can help you find the best market. Many buyers base their price offer on Chicago's or New York's —paying producers at a certain differential under that base. Find out what these differentials are, and follow the trend of the market to maintain a strong bargaining position with buyers.

Compare prices at all of the outlets conveniently available to you. The range of prices offered on a specific grade may surprise you. Don't take less than you might simply because you haven't compared markets and kept up to date on prices. Compare also the grading ability of buyers. Choose *convenient* outlets that do a good job of grading and pay appropriate price differentials on a quality basis.

Grains: With grain to sell, you usually have three choices: (1) to sell at harvest time, (2) to store for later sale or (3) to market through livestock. The normal seasonal price movement gives some idea of what to expect. But the extent of any price recovery after harvest depends on how the total supply of grain stacks up against the potential demand for the year.

In deciding whether or not to feed your grain, outlook information on grain and livestock prices can be used to estimate the feeding ratios in the months ahead. Thus, if the price ratio between corn and cattle, for example, looks favorable for feeding—and if you have the facilities and know-how for the job—this might be the best way to market your corn. At other times, selling grain for cash may offer greater and more certain returns.

Recent studies indicate that stable flies commonly reduce milk production 10 to 25 per cent.

If you store, keep a close watch on the grain's condition. In deciding when to sell, keep an eye on the production outlook for the coming year. If early indications point to a big crop, don't hold your grain too long into the production year.

Effective grain marketing calls for consideration of production estimates and potential demand factors. Outlook forecasts are the best sources of information to help with this. Daily information is available on the cash-grain and grain-futures markets.

Watch local elevator quotations when deciding when and wher to sell cash grain. Consider both the No. 2 or trading grade price and the discounts or premiums on other grades.

Futures prices give some indication of what the trade expects in the months ahead. And hedging in the futures market may offer additional possibilities if you have a fairly large amount of grain. Consider also government activities in the grain market. Price-support and disposal programs are necessarily a part of your present-day grain marketing plans.

Your Sources . . .

To make use of marketing information, get into the habit of following the radio and television market reports covering your products. Find a source which offers timely, complete and accurate reports for your needs. This is the only way to make full use of the market information available.

Market news is available, too, in your daily newspaper and farm publications. Local buyers are sources of additional information. Find out what information is available to you and how you can use it to best advantage. You'll find it generally pays to keep yourself informed — rather than trying to catch up on what's happening the day before you plan to sell.

You may not always be able to hit the high market. But you will probably do a better marketing job, be more satisfied with the results and have more money in your pocket if you keep in touch with the current market situation.

Pelleted Hog Feeds 11 Per Cent More Efficient Than Meal

Pelleting a complete ration resulted in faster and more efficient gains than the same ration fed in meal form in experiments conducted at Michigan State University. Lots of 7 pigs were fed rations that were identical except that one was pelleted and the other was in meal form. The ration contained 10% oats. The pigs were fed from 121 lbs. to market weight. The pigs receiving the pelleted ration gained 23% faster and the meal-fed pigs required 18% more feed per pound of gain. The costs of gain per 100 lbs. were $13.14 for the meal-fed pigs and $11.63 for the pelleted-fed lot — including the pelleting cost of $3 per ton. The advantage was $1.51 or 11% cheaper gains for the pellet-fed lot. *—National Hog Farmer*

Measuring Fat in Beef

Researchers develop a means for measuring marbling . . .

Condensed from
Research and Farming

T. N. Blumer and *H. B. Craig*

FAT is necessary in eating beef for juiciness and flavor. But how much do you want? Grades of cattle differ in the amounts of fat they have. Prime animals have the fattest carcasses followed by choice, good, standard and utility, in that order.

Roughly half of the emphasis in beef grading is based on the amount of fat present. The fat covering on the outside of the carcass (rind) is considered, but more important is that deposited within the muscles, known as marbling.

Ideally, a beef carcass should have a thin, uniform fat covering over the entire carcass plus abundant marbling. More often though, animals have a thick rind associated with a large amount of marbling. Prime carcasses often have excessive rind. So do many choice and good carcasses, especially if the cattle are two or more years old.

Little Outside Fat Preferred

Consumers definitely prefer a minimum of outside fat, according to observed demands and a few consumer preference studies. The amount of marbling desired, however, seems to be more variable. In general, at least a moderate amount of marbling is preferred in steaks and in roasts tender enough for dry roasting. Also, the marbling deposits should be small in area (finely marbled). Coarsely marbled meat is somewhat objectionable.

Precise Measurements Used

A precise, objective method for measuring marbling is essential to check results of controlled beef breeding and feeding experiments. Present Federal Grading Standards describe the amount of marbling present with descriptive words, but not in mathematical quantities. Thus, accuracy depends on the experience and proficiency of the user.

For the past several years we have used an objective method of measuring marbling, that is quite satisfactory. We determine, under a magnifying glass, the amount of marbling in a one-

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half inch thick slice of ribeye muscle from the twelfth rib area.

Deposits having a surface area of more than four square millimeters are measured and the length and width recorded separately. Calculations can then be made for each deposit and for the combined area of all deposits. Smaller marbling deposits also are counted and recorded.

This technique enables us to say exactly how much marbling is present and how it is distributed. Results check very closely with other methods of fat determination.

We hope this will help us detect differences in marbling that may appear in future breeding and feeding experiments. It may even permit selection and mating of animals on the basis of their fat producing characteristics. This, in turn, would help livestock growers produce animals with the desired amounts of fat.

Feeder cattle should gain at least one pound a day during the winter. They should gain 400 pounds in a year on roughages and pasture.

Rain and Mud Can Mean Foot Rot

Winter rains, coupled with muddy pastures and barnyards, can mean "foot rot" for cows.

R. L. Wynn, North Carolina dairy specialist, explained that organisms which cause foot rot in dairy cattle live best in wet, muddy places. Infection often gets its start from foot and hoof injuries caused by wires, stones or rough places around the barnyard and pasture.

"When a lame cow is noticed in the herd," Wynn said, "she should be checked immediately for foot rot. Some symptoms may be swelling and redness around the head of the hoof, reduced milk production and a loss of vigor."

For treatment, Wynn recommends cleaning the infected foot and washing it with a disinfectant. If possible, let the cow stand in a foot bath one or two hours each day. Keep her in a dry place until she recovers. A solution of copper sulphate or creolin is frequently used with good results. For best precautions, however, Wynn suggests calling a veterinarian.

The elimination of as many wet areas around the lot as possible is one of the best ways to prevent the disease, Wynn concluded.

—*North Carolina State College*

Hens Need Light To Lay

A new system of restricted lighting has created a sensation among owners of laying flocks. This article tells the results . . .

Condensed from Egg Producer

Roger Keith

LIGHT from the sun, a light bulb, or a fluorescent tube is necessary if a hen is to produce eggs. Light does its job by entering the hen's body through the eye and then passing along the optic nerve to the pituitary, a small gland located at the base of the brain.

Light stimulates this gland, producing substances that activate the hen's ovary, causing it to produce yolks and activate the oviduct, which, in turn, produces albumen, shell membrane and shell, and then these pituitary substances cause the egg to be laid. New evidence is reported which indicates the use of lights. The smart egg producer uses artificial light during the fall and winter to increase egg production at the time when egg prices are normally highest.

New Lighting Information

The general recommendation has been to provide 13 to 14 hours of light each 24 hours to produce the most eggs at the most profitable time of the year. However, it has been generally agreed that the use of artificial light did not increase the yearly total egg production per hen.

Earlier this year, Prof. Dale F. King, at Alabama Polytechnic Institute, created a sensation by reporting on the "Stimulight" system of using light during growing and egg producing periods of the hens' life. This is a system of restricted lighting.

"Stimulight" Effects

Chicks are restricted to 6 hours of light each day to 5 months of age. For the first laying year, the light is increased 18 minutes each week. At the end of this time, the hens are receiving 21 hours and 36 minutes of light each 24 hours.

Prof. King reported that pullets on the "Stimulight" treatment laid 270 eggs per pullet as com-

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pared to 215 eggs per pullet raised on 12 hours of light for the first 5 months of life and given 14 hours of light per 24 hours during the first laying year. This difference of 55 eggs per hen at 40c per dozen means an additional income of $1.81 per hen.

Shortly after the Alabama work was made public, the Product Testing Section of Doane Agricultural Service, St. Louis, Mo., released the following results of a "Stimulight" test based on farm conditions and using larger number of birds; 500 pullet chicks were started Sept. 27, 1956.

They were brooded together with heat lamps and thus were under continuous light from the brooders during the 5-week brooding period. After the first 5 weeks, the birds were restricted to 6 hours of light each day until 12 weeks old when the flock was equally divided into a stimulight flock and a control flock.

The stimulight flock was continued on 6 hours of light per day until 20 weeks of age when the light was increased 18 minutes each week until conclusion of the tests Jan. 31, 1958. The control flock had light increased from 6 to 14 hours daily during the 13th week, which was continued until the end of the test.

Some Questions Unanswered

Pullets in the control flock started laying 11 days before the "stimulight" flock, and the control flock reached 50% production 13 days before the stimulight flock. When laying started, there were 229 birds in each flock. At the end of 11 months, there were 162 birds remaining in the stimulight flock, and 180 in the control; however, 11 birds died in the stimulight flock due to a ventilation failure during a heat wave in July.

The total number of eggs laid from the time of first egg in February, 1957, through Jan. 31, 1858, was 40,715 from the control flock, and 44,783 from the stimulight, or a hen-housed average production for the controls of 177.7 eggs per hen, and 180.5 for the stimulight flock.

The value of a beef cow is indicated by the type, quality and weight of her calf at the end of the pasture season about Oct. 1. Any calf born in January or February should weigh 500 pounds or more by the following Oct. 1.

Based on the Doane test and King's earlier test, the stimulight method seems to have promise, but it needs more testing to answer such questions as the optimum light increase; how the light should be increased—daily, weekly, monthly; optimum light program during the growing period; and costs and problems of mechanical ventilation necessary

in a house built to restrict light.

There is considerable experimental evidence that immature pullets should not be lighted, or if lighted, the amount should be limited, prior to their reaching 5 months of age. Callenbach and his co-workers at Pennsylvania in 1944 found that pullet chicks hatched in June and matured without artificial light laid more eggs than did pullets given 24 hours of light each day.

Excessive lighting during the growing period may explain the poor performance sometimes shown by pullets hatched in November and December. In contrast, chicks hatched in late spring and early summer are likely to give excellent results when exposed to artificial light.

Cannibalism May Be Poultry Problem

Mistreatment of birds low on the social scale may be a problem even in the best of poultry families,—and the poultryman must keep a careful watch for this sort of delinquency.

There are several things which may cause feather-picking or cannibalism in a poultry flock. Some breeds or strains seem to have more of a tendency toward feather-picking than others. Feeding and watering practices, crowding, lack of proper ventilation, lack of a proper amount of salt or protein in the diet, irritation caused by mites, the energy level of the diet and the form in which it is fed, may all be factors in causing the trouble.

A comfortable, well-ventilated house, enough feeding and watering space, freedom from external parasites, the feeding of diets higher in fiber, and the feeding of mash instead of an all-pellet ration will often help to reduce a cannibalistic tendency. Other things that may help include putting red, bitter ointment (anti-pick salves) on the backs or bodies of birds that are being molested, hanging of green feeds or bones with shreds of meat attached about the height of the birds' heads, adding a little more salt to the feed (about 1 to 2% added salt to the ration for 4 or 5 days), or turning small flocks out on range.

However, the remedies mentioned may not always give the desired results, and probably the surest way to combat the trouble is to debeak the birds. For additional information on debeaking, see your county agent, or vocational agriculture instructor, or feed service man. *V.P.I.*

Tractor Motor Oils for Cold Weather

New multi-grade 10W-30 gives you both 10W protection for cold starts and 30-weight protection for a warm engine . . .

Condensed from Prairie Farmer

Thomas E. Claque, Agricultural Engineer

WINTER motor oil is important for two main reasons—ease of starting and length of engine life. And your choice of oil for the winter can have a great deal to do with both.

Cold-weather starting can be quite a headache if you don't take proper steps. In addition to top condition of your ignition system and battery, your choice of motor oil is all-important.

Unless your tractor has a magneto, the ignition system is fired by the battery. This means that the battery must feed both the starter and the ignition system. Starter comes first, with the ignition system getting what's left of the battery's power.

Thus, the harder the engine turns over, the weaker the spark will be, and the harder your engine will start. For this reason, it is important that you use an oil that will flow as freely as possible at low temperature.

On the other hand, the length of life of your engine depends upon the protection of your oil —both when it is cold and after the engine is well warmed up. This is asking quite a lot of oil, since it naturally flows less freely when it is cold and more freely when it is hot.

Until recent years we had to use a winter oil for cold weather. For summer we used a heavier oil. The winter oil was light, perhaps 10 W. Its use was an out-and-out concession to the starting problem.

Nobody had any illusions that it could protect the hard-working, well-warmed-up engine as well as 30-weight oil. But we had to use it because of the starting problem. Only during the summer could we use 30 and 40-weight oils.

Then a few years ago the industry began marketing the multigrade oils, such as 10 W-30. These oils are much more versatile than the single-grade oils. A 10 W-30 oil behaves like a 10W oil at low temperatures, and like a 30-weight oil at high temperatures.

Thus you can see why the multigrade oils are able to give

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better all-weather protection and lubrication than single-grade oils. You get the free-flowing qualities of a 10 W when it's cold. Yet, after it is warmed up, you get the full-bodied protection of a 30-weight oil.

Just how important it is that you give your engine maximum protection during cold operation is indicated by tests which show that one cold start produces as much wear as three hours of work after the engine is well warmed up.

The rate of wear of an engine right after a cold start is six times as severe as after it is thoroughly warmed up. So you can see why long engine life depends so much upon using an oil that gives you the best protection you can get when it's cold. Today this means using a multi-grade oil.

The oil companies can't do it all for you, though. All they can do is supply you with good oil. It's up to you to keep fresh, clean oil in your engine.

This is particularly important during cold weather, because it takes a long time to warm up the engine—and it is during the warm-up period that the incomplete combustion and the condensation on the cold cylinder walls produces the substances which dilute and contaminate the oil. This contamination lowers the quality of the oil.

Acids and other contaminants destroy the effectiveness of additives which are put in the oil to do a specific job. In addition, sludging begins to take place, and this reduces the ability of the oil to keep the engine clean.

Using the best oil in the world won't protect your engine unless you change it often enough to keep reasonably clean, fresh oil at work inside. You have often heard it said that oil doesn't wear out; it just gets dirty.

This can no longer be accepted as true. An important part of today's oil is the additive content, and recent tests have shown that additives are used up, actually lowering the quality of the oil.

How frequently you should change oil depends largely upon the type of operation your engine gets. If it only makes an occasional cold start and then runs for many hours after the warm-up period is over, you can expect many hours of good service from a fill of oil.

Some instruction manuals say 150 hours. On the other hand, if your engine rarely gets well warmed up (and it takes at least a half hour for all points inside your engine to reach normal operating temperature), then you will be wise to change more often, because of the abuse the oil takes from cold-engine operation.

Caged Layers In New York

More positive control over the birds, higher production rates, lower mortality, and less feed are the major advantages of caged layer operations . . .

Condensed from Farm Economics

DURING recent months many poultrymen have been asking questions about caged layer operations. Some of these questions have been: What rates of egg production are obtained with the cage system? How does the mortality of the birds kept in cages compare with that of birds in the usual floor operation? Do cages save feed and labor on the poultry enterprise? What are the costs of production with caged layers?

To obtain answers to these and other questions a survey was made of caged layer installations in the State of New York. Physical inputs and costs and returns data were obtained from 21 operators for the year ending Sept. 30, 1957. Of these operators, 10 kept all of their layers in cages while 11 had combination cage and floor operations.

Physical Cost Factor

For the cage enterprises, flock size ranged from 68 to 10,000 layers and averaged 1,481 birds (table 1). Mortality was low, averaging 6 per cent, and the rate of egg production, at 230 eggs per layer, was very satisfactory. Both feed and labor were generally used efficiently, requiring 95 pounds and 1 hour per layer per year respectively.

TABLE 1.—PHYSICAL COST FACTORS IN CAGED LAYER OPERATIONS
21 New York Farms, 1956-57

Item	Average	Range
	Number	
Number of layers	1481	68 —10,000
Per cent mortality	6	3 — 25
Eggs per layer	230	163 — 269
Feed used:		
Pounds per layer	95	70 — 109
Pounds per doz. eggs	5.0	4.0— 7.1
Labor required:		
Hours per layer	1.0	0.6— 2.1
Minutes per doz. eggs	3.2	2.1— 7.8

When compared with the results of a New York poultry study made in 1955-56, these operations were smaller in size, had higher egg production and feed efficiency, lower mortality, and about the same labor requirements. Much of the difference in these factors can presumably be attributed to the practice followed by

Reprinted from Farm Economics, New York State College of Agriculture, Ithaca, New York

the majority of these operators of keeping the cages filled with productive birds at all times.

Costs and Returns

Total costs in the laying enterprise averaged $8.09 per layer and about 43 cents per dozen eggs (table 2). Returns were $8.35 per layer and approximately 44 cents per dozen. Thus profits amounted to 26 cents per layer and one cent per dozen eggs. Feed costs comprised about 50 per cent, labor nearly 20 per cent, and depreciation on the laying flock approximately 15 per cent of total costs.

"Take your hat off to the past and your coat off to the future." —Paul G. Hoffman

TABLE 2.—COSTS AND RETURNS PER LAYER AND PER DOZEN EGGS FOR CAGED LAYERS
21 New York Farms, 1956-57

Item	Dollars per layer	Cents per dozen eggs
Costs:		
Feed	4.02	21.4
Labor	1.50	8.0
Depreciation	1.16	6.2
Buildings	.58	3.1
Equipment	.47	2.5
Interest on flock	.08	0.4
Other	.28	1.5
Total Costs	8.09	43.1
Returns:		
Eggs	8.34	44.0
Other	.01	0.1
Total Returns	8.35	44.1
Profit	.26	1.0

The costs per layer for these flocks were approximately one dollar higher than those in the 1955-56 study. However, with the higher production rates for the caged flocks, the total costs per dozen eggs were about the same. Feed costs were significantly lower for the caged layers due to their greater feed efficiency. In contrast, building and equipment costs were appreciably higher. This was due primarily to the additional investment in cages and accompanying equipment over and above the investment in conventional housing.

When asked their opinions concerning the caged operations, these operators listed as the major advantages of cages over floor operations: (1) more positive control over the birds, (2) higher production rates, (3) lower mortality and (4) less feed. The principal problems encountered were wet droppings and flies during certain seasons of the year.

Choice of a superior strain of chickens is of primary importance to success with poultry, poultry scientists assert. Market egg producers can benefit from study of reports of the Official Random Sample Laying Tests in the United States. Copies may be obtained from the Laying Test Council headquarters, Ithaca, New York.

Make Wood Posts Last Longer

Try these suggestions — they'll save work and add years to life of posts.

Condensed from
Wallace's Farmer and
Iowa Homestead

AS feeding and pasturing methods change, fencing methods change with them. Although electric fences and steel posts have become commonplace on most farms, the wooden fence post will probably continue to be a familiar part of the farm scene.

Selection and care of fence posts should be done with the idea of getting the longest service for the least expense.

Trees differ a lot in their resistance to decay. When you know these differences, you can choose the kind of post that will give you the longest service.

You can expect 20 years of service from posts made of black locust or red cedar. Round or split posts will have equally long lives.

Posts with a life expectancy of 10 to 20 years are honey locust, white oak and white cedar.

You'll get only five to 10 years of life from tamarack, hemlock, butternut and black cherry posts.

There's a long list of common farm trees that will give no more than five years of service as fence posts.

These are white ash, red and black oak, hard and soft maple, yellow and white birch, pine, hickory, elm, basswood, willow and poplar.

Split posts of any of these species will have even a shorter life.

Costs of wooden fence posts should be considered carefully. The actual cost of a post may be misleading. A low cost post with a short life isn't a bargain in the long run.

The real cost should be figured on a yearly basis. The cost of buying and installing a black locust fence post, for instance, may be 75 cents. Such a post might last 25 years, making an annual cost of 3 cents per post.

A white oak post might cost 50 cents but will give about 10 years of service. Cost per year is 5 cents a post.

Poplar and birch posts may be plentiful with practically no cost

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except the labor of putting them in.

If they were replaced every three years, labor alone would make an annual cost of 8 cents if installation was 25 cents per post.

Where wooden fence posts are available, you'll find that they cost about the same as steel posts.

Cost of a steel post, including installation would be about $1.10 and the post would give 20 years of service. This would be an annual cost of less than 5 cents a post, about the same as a white oak post.

Short-lived fence posts can be made to last for as long as 15 or 20 years if they are treated with a wood preservative. Most common preservatives in farm use are creosote and oil or pentachlorphenol and oil.

If a farm has a lot of good fence post material, treating posts may be a profitable practice. Cost of the material usually runs about 20 cents per post.

By adding even 10 years to the life of the post, annual cost goes up only 2 cents per post.

Of course, in many cases, the cost of labor may be too high to make fence post treatment worthwhile. But labor of treating posts may cost no more than the labor that would go into replacing the post four or five times if it was untreated.

Farm fencing is still a big job. Before you put in a lot of time and expense on a fencing job, it will pay you to know how long your posts will last before you must do the job again.

Figuring fence post cost by the year based on the expected life of the post will give you a true picture of the cost.

Poultry Inspection Act Became Effective Jan. 1, 1959

For poultry processing plants, January 1, 1959 is an important day.

That's the date when according to the new Poultry Products Inspection Act, all ready-to-cook poultry shipped across state lines must be inspected for wholesomeness by the U. S. Department of Agriculture.

The federal law requires approval of the plants, premises, blueprints, inspection labels, water and chemicals used by a processor. Sanitation is especially important. Under the program, routine services of USDA inspectors are provided with no charge. When a plant is approved, qualified personnel will inspect each bird and affix the official "Inspected for Wholesomeness" label.

—Louisiana Extension

Artificial Breeding 'Comes of Age'

"Artificial insemination has established itself as a powerful, practical and economic tool for mass improvement of cattle." Read about its growth and advancements . . .

Condensed from Western Dairy Journal

Dr. H. A. Herman,
National Assn. of Artificial Breeders

IMPROVED breeding is within reach of almost every dairyman today. There is no longer need for him to wish for better sires because all he has to do is pick up his telephone and call the local inseminator. Herd bulls used in artificial breeding start working for the dairyman at what the interest on investment would amount to if he owned the bull.

Artificial insemination has established itself as a powerful, practical and economic tool for mass improvement of cattle. This program is now in its 21st year in America—it's no longer a baby in swaddling clothes. It's a herd improver from "who laid the chunk" so far as building producing potential in milk cows is concerned.

Steady Gain. Artificial insemination was started for a few hundred herds in New Jersey and a few hundred in Missouri and Minnesota in 1938. All told, it served 646 herds involving 7,359 cows. From this feeble beginning, when dairymen who were rightfully skeptical kept herd bulls but bred a few artificially, the artificial breeding program has grown by leaps and bounds.

A total of 6,055,982 cows in 946,000 herds were artificially inseminated during 1957. This amounts to about 28% of our milk cow population. It is a new high for America but still far below some European countries where the picture is as follows:

Denmark	96%
Japan	92%
Holland*	60%
England**	57%
West Germany*	22%
United States	28%

* gaining steadily
** continues to gain

France Advancing. France is

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advancing with 15% of its milk cows artificially inseminated in 1950 but over 20% in 1957. Practically every country in the world is using artificial insemination as a cattle improvement program.

Western dairymen are using artificial insemination at an increasing rate. An increase of nearly 100,000 cows per year occurred from 1950 to 1953. Since 1953, the gain has been about 60,000 cows per year and growth rate is quite steady. Five times as many cows were in the program in 1957 as in 1950.

Artificial insemination meets dairymen's approval because:

It is cheaper than owning a bull of equal caliber. One hundred times more cows may be serviced than when natural service is used. Cost per service is reduced.

Safety. Danger from the bull is eliminated, and family employees are safe. One person is killed every four days by bulls in the U. S. Many others are injured.

He who drives like the wind today is often gone with the wind tomorrow.

Maintenance cost, need for strong pens, veterinary service, depreciation, possible loss of the bull and investment are all eliminated through A.I. The artificial breeding organization takes these risks.

Artificial breeding, if healthy bulls are used, stops the spread of vibriosis, trichomoniasis, vaginitis, leptospirosis and low grade infections of the reproductive tract. Artificially bred herds are troubled less by venereal disease than the average natural-service herd since, in natural service, the bull spreads venereal disease from cow to cow.

Quality. The dairyman who uses artificial breeding is assured of top performing bulls. Bulls in A.I. use are carefully selected either as proved sires in the upper bracket or as young bulls backed by ancestry with production and type potentials that a key purebred breeder would buy.

By use of specially handled liquid semen or frozen semen, the dairyman has a choice of sires. Through cooperation among the 71 bull studs in the United States and the fact that many outstanding breeders are making semen available through bull studs, a dairyman can make selected matings to a wide array of bulls. Never before have dairymen and purebred breeders had an opportunity to utilize such efficient service.

Many Services. One startling development in artificial insemination is the large number of cows serviced per sire. In 1938, the average was 228 cows per

sire maintained and, in 1957, the average was 2,284 cows.

This increase in service results from better evaluation, extension, storage and shipping methods for semen. There have also been many advantages made in perfecting storage chests for both central storage and field use. These factors aid in better settling rates.

During 1957, about 45% of the dairy sires in use by artificial breeding organizations were proved sires. Such sires are heavily used, 4,000-8,000 cows serviced per year, to account for 75% of the total services for some organizations to 100% for a few others. If we assume 80% of all services to proved bulls, it means over 4½ million cows so serviced last year. It's never happened before—that's why we say: "Improving cattle by the million."

Numbers don't always count. A fly can lay more eggs than a hen.

Prior to A.I., only one out of 10 dairy sires in this country were proved. Such sires were largely in registered herds and were used in only one or occasionally two herds, with 40-80 cows serviced a year at the most. Compare that to 8,000 cows in a year!

Example Cited. An example of a proved sire doing a great job is High Meadow Farm Masterpiece, used by New York Artificial Breeders' Cooperative, Ithaca. This bull recently died following many years' use in A.I. He is credited with 1,019 D.H.I.A. daughters with 1,904 records that averaged 12,696 lb. milk, 460 lb. fat on 2x milking, 305-day lactation, mature basis. His daughters out-produced their stablemates by 483 lb. milk and 22 lb. fat. This was on thousands of New York farms and at varying levels of management. It is estimated that this bull sired 70,000 offspring.

Improvement. If all proved sires in A.I. were compared, their daughters (41 tested per sire) would average 11,304 lb. milk, 477 lb. fat. This is 678 lb. milk, 37 lb. fat above their dams. It is 1,104 lb. milk and 57 lb. fat above the average of daughter of all proved sires reported in 1957.

Six greatest words on earth:
Know thyself — Socrates
Control thyself — Cicero
Give thyself — Christ

American purebred dairy cattle breeders face a great challenge to produce sires that will help the A.I. program improve the more than 2 million milking herds in this country. They are scarce but, with the great opportunity to mate outstanding sires to great brood cows, much

can be done to produce more sires with above average potential.

Obstacle. Many purebred breeders use artificial breeding. While it is true that the number of sires is reduced, not many promising bulls are sacrificed. The idea "that every registered bull born should be a herd sire for someone" has been a stumbling block in our progress.

Many calves now registered result from artificial breeding; in Holsteins, 46.7%; Guernseys, 29.6%; Jerseys, 31.9%; Brown Swiss and Ayrshires, about 20%; and Milking Shorthorns, 11%.

Last year, nearly 11% of all inseminations were to beef bulls. Use of beef bulls gains continually because some small dairymen are converting to beef; some dairymen breed poor producing and off type cows to bulls and sell the resulting calves for slaughter; many west coast dairymen breed first-calf heifers to beef bulls because of ease of calving and sell the first-calf crop for beef.

Beef Producers. Many small commercial beef producers are also using A.I. to raise beef quality. Hundreds of purebred beef raisers find artificial breeding valuable in reducing breeding troubles, getting a better calf crop and increasing use of their best sires. This practice is just beginning in some areas.

No dairyman can use mediocre performing animals and enjoy a satisfactory standard of living in these days of high overhead costs. Better breeding, feeding, disease control and weeding out poor performing cattle are the answers. And artificial insemination brings "better breeding" to his barnyard or corral.

For Best Results Set Pines in Moist Soil

Don't plant pine seedlings when the ground is dry.

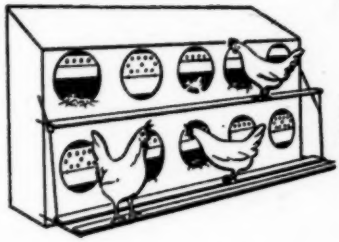
That is the advice from R. S. Douglass, forestry specialist for the N. C. Agricultural Extension Service.

"Any farmer or gardener knows that it is poor judgment to set out plants in dry soil," Douglass said. "In the past, not much attention has been given to soil moisture conditions necessary for successful pine planting.

"However," Douglass continued, "in the last few years many thousands of acres of dry, sandy land have been planted in pines."

Some of these pines have not done too well. And Douglass attributed their failure to a lack of moisture in the soil when the pines were planted. —*North Carolina State College*

Boost Egg Production With Morning Lights



Increase fall and winter production by as much as 20 to 30 per cent by the correct use of artificial light . . .

Condensed from Mississippi Farmer

RESEARCH work has shown that fall and winter egg production can be boosted by as much as 20 to 30 per cent by the correct use of artificial light to supplement daylight so that a total of 12 to 14 hours of light is provided.

The use of lights will probably not greatly increase total yearly egg production for a flock, but it does stimulate increased production during the time of year when egg prices are relatively high. This possibility of increasing profits cannot be overlooked by producers.

There are several systems of lighting that can be used. Providing evening lights so that the hens' working day is lengthened is one system that is sometimes used. But this means that lights must be dimmed gradually at the end of the lighting period so that hens are given time to settle down or go to roost before the house is darkened.

Morning Lights Best

A more satisfactory system is one in which morning lights are used. Turn them on long enough before daylight so that the birds will have 12 to 14 hours of light. This system does not require the use of dimmer switch.

Occasionally producers use a combination of morning and evening lights and now and then one will be found using all-night lights. When the all-night lighting system is used, small bulbs are used, providing just enough light so that the hens can see the feed and water. When morning and evening lights are used it is recommended that one 60 watt bulb be provided for each 200 square feet of floor space.

For the correct use of lights, an automatic switch is almost a necessity. This makes it possible to set the switch so that the lights will be turned on at a given time each morning. If such a switch is not provided, there is too much

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possibility of either over-sleeping or forgetting to turn the lights on at the same time each day. Actually if this is not done a decrease in production might result.

Another point to consider in the use of lights in the laying house is that of keeping the bulbs clean. When bulbs get dusty and dirty, the effectiveness of the light is reduced. Some producers use reflectors over the bulbs to increase their effectiveness.

Once the system is started it should be followed regularly and the bulbs should be kept clean to get maximum benefit from the lights.

Provide Deep Litter

Providing six to eight inches of good litter material and plenty of ventilation are essential steps that must be followed if the laying house is to be kept dry. Failure to provide these often results in a wet litter problem that not only increases disease hazards but also greatly increases the number of dirty eggs produced. This in turn means additional labor requirements in getting the eggs cleaned and ready for market.

For best results the litter should be built up to a depth of six to eight inches before cold weather sets in. There are at least two reasons for this. First of all, warm air will hold more moisture than cold air; and second, building the litter up to this depth will give it a chance to become thoroughly mixed before cold damp weather starts.

Ventilation Pointers

A house that is properly ventilated is also necessary if the litter is to be kept dry, and there is some difference in summer and winter time ventilation requirements.

In the summer time it is usually a matter of providing all the air movement possible through the house. During cold weather the ventilation openings should be high enough on the wall so that cold air entering the house will mix with the warm air in the house, thus increasing its moisture holding capacity. After it has been warmed up and has taken up some of the moisture inside the house, it can be moved on out through ridge ventilators.

A dry, clean house not only reduces disease hazards but also cuts down on labor requirements.

Pipeline milkers with leaky valves cause acid to form in the milk and give it a bad taste, recent studies show. Extremely long pipelines with many risers cause a churning action that gives a rancid taste to the milk.

American Visits a Russian Farm

See farming from Leningrad to the Ukraine in your armchair . . .

Condensed from Pennsylvania Farmer

William A. Gress

DR. D. H. LEGEAR of St. Louis, Missouri, has just returned to this country from a month-long tour of Europe and the Soviet Union, covering 18,000 miles. He was invited as a member of a 24-man delegation representing all phases of American agriculture. This trip was in return for a similar visit to this country recently by a group of Russian farm leaders.

Dr. LeGear has drawn a few comparisons between farming as we know it here and farming as he has seen it from Leningrad to the Ukraine. It is a difficult comparison to draw, for the two are as different as is possible and yet be in the same industry.

It is better to keep in step with yourself than the crowd.

Let's look first at the collective farm, of which we have heard so much in recent years. The collective farm visited by Dr. LeGear's party was in the Ukraine, near the city of Kiev. They found a climate not unlike that of northern Pennsylvania or similar region but land that came closer in appearance and terrain to parts of Kansas.

Management Board

This particular collective farm, like its counterparts throughout Russia is controlled by a management board of eight people, each elected to his office every two years. The board is headed by a farm manager, in this particular instance, a man by the name of Bobich. In addition, there is an auditing board of five people, also selected by election. This group, which checks the work of the management board, is responsible only to itself, and presumably to Moscow.

The farm visited was large by United States standards, consisting of 926 hectares, or approximately 2,317 acres, of which some 1,675 acres were tillable. On the farm, the group found 305 families, numbering 608 active workers. The average household was made up of about eight persons, of which all but the children and the grandparents were considered active workers.

Reprinted by permission from Pennsylvania Farmer, Harrisburg, Pennsylvania

This Ukraine collective farm engaged in diversified farming with cattle breeding done by artificial insemination. The management board had set up a three-fold crop rotation plan for direct farming, pasture and fallow land. A total of 228 acres were devoted to crop farming, 200 acres set aside for cattle fodder, and 1,250 acres for grain.

The actual farm work was carried on by teams of specialists. One team specialized in raising grain, another vegetables, another corn and potatoes, and still another handled the animal breeding and management.

Paid By Units

Work on the collective farm is paid for by "Units." A worker has a quota and must accumulate 30 work units per month. If he is particularly industrious, it's possible for him to earn as many as 80 units. In compensation for one work day unit, the worker receives cash and crops for personal living. A typical payment would be 11 rubles or about $2.75 per day in cash, one and a half kilograms of wheat, two kilograms of potatoes, one kilogram of fodder for his personal cattle, if he has any, and half a kilogram of vegetables, which would equal about one pound of vegetables in this country.

Private ownership of land and livestock is sharply limited. A family may have a house and up to one acre of land. On this land he may raise his own vegetables, have one cow, one sow and her litter and as many chickens and bees as can be crammed into this space. This land can never be sold, although it can be handed down from father to son.

Farmers were observed working in their fields as late as ten

Some homes have private phones—others have teen-age children.

and eleven o'clock at night, and it was assumed they were either tilling their own plot of land after farm hours, or working overtime to acquire extra bonus work units.

The average Russian farm day is eight hours long. Work begins at eight o'clock and continues until noon, resumes at three o'clock and continues until seven in the evening.

Dr. LeGear noticed Herefords, Holsteins, and some Guernseys on this and other Russian farms he visited, along with some native breeds such as the huge Lebedinskaaya, which is a cross between the Brown Swiss and the Huge Grey Ukranian. This animal is used for both milk and for beef and weighs from 1,600 to 1,700 pounds. The Simental, also a Ukranian species and used for both beef and milk, weighs in

at about 1,600 pounds. The Red Steppe is a dairy type only and had an average weight of about 1,270 pounds. From these native and imported cattle, milk with a 3.3 per cent butterfat content was sold to the state for $3 per cwt. Russian officials told Dr. LeGear that the average milk production per cow was 9,240 pounds of milk, which looked as though they might be "stretching" the milk pail a bit.

Lot Less Money

The total cash income of the collective farm totaled $570,000 of which 15 per cent was set aside in a separate building fund. Each household received about $1,875 as annual income for work on the farm. By standards in the United States, that isn't much money for a family of eight. With Russian prices for consumer goods, it's a lot less.

A strange but true fact is that when anything is wanted to be done, it is always the idlest who say they have no time. The busiest men somehow can find time to read, and to add to their labors, and to do some service."—Hugh Black

In addition, Dr. LeGear and his party visited a Russian state farm, which differs from the collective farm in that it is state owned and is used primarily as an experimental farm. The state farm he visited was located near Kharkov and was nearly 18,000 acres in size.

On the state farm, cows were milked on a piecework basis by female employees. All dairy work in Russia, incidentally, seems to be done by women. One woman milks 25 cows on a two or three milking per day basis in an eight hour day. All milking that Dr. LeGear observed was done by vacuum line milking machines, with all stripping done by hand.

Each state farm and collective farm is a completely independent unit. It conducts its own activities such as building and operational activities. Everything each farm needs is grown on that farm, even to a point of having its own feed mixing and pelleting equipment. There is no mixing industry as such in the Soviet Union.

This is farming in Russia as Dr. LeGear saw it. Try to imagine one of these huge, sprawling, heavily populated farms, using manpower instead of machines, with its different ways of doing things, as being located just down the road from your farm. Or even better, try to imagine yourself working with your family under these conditions in a land where faith has no part in a farm family's existence. We think you will agree, it's better here in our country.

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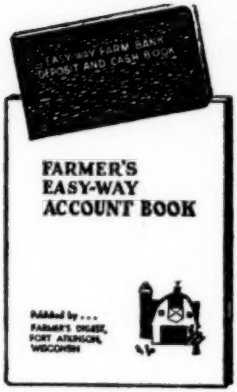

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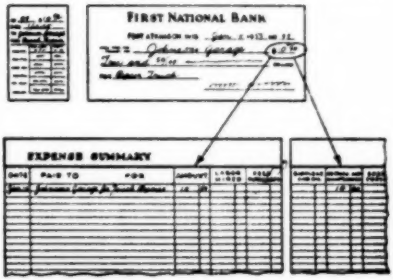

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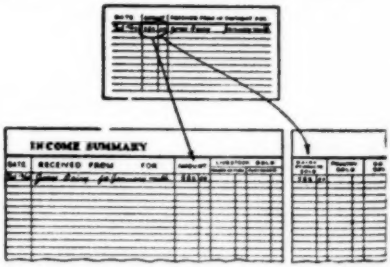

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